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Page 6 Publishing's

NEW ATARI USER

The Resource for the ATARI CLASSIC and the ATARI ST

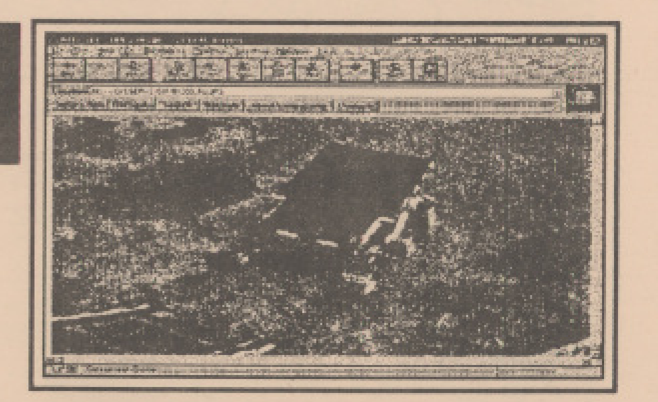
Issue 82 - January/February 1998 £2.50

FOR THE ATARI CLASSIC



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- **COMPUTER INTELLIGENCE**
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This issue's ....

Thanks

Les Ellingham puts it all together and fills up the gaps but the real thanks goes to the following who made this issue possible

Sandy Ellingham who takes care of all the office work, advertising and mail order

For their contributions this issue

Joel Goodwin	***Daniel Baverstock***
John Foskett	***John S Davison***
David Sargeant	***Pete Davison***
Donald A Thomas Jr.	***H S Wood***
Dean Garraghty	***Paul Bramley***
James Mathrick	***John Hull***
Ann O'Driscoll	***Alan Milne***
Austin Hillman	***Graeme Fenwick***

APOLOGIES

I am still extremely poor in acknowledging contributions so I apologise to everyone who has sent in stuff and thought it has gone through the wormhole. The intention to reply to everyone is there but the time seems to drift by. If you have not heard, thank you and keep watching the mag. you might be surprised.

HOW IT'S DONE

PAGE 6 shows just what you can do with your Atari. NEW ATARI USER has always been created entirely with Atari equipment, initially on the XL but more lately with a Mega ST and other stuff, who needs PC's or Macs! Hardware includes a Mega ST2 (upgraded to 4Mb), SM125 Monitor, Supra 30Mb Hard Disk, a HP Laserjet III, Citizen 124D printer, Philips CM8833 monitor, 130XE, a couple of 1050 disk drives, 850 interface, NEC 8023 printer. Principal software used is Protext and Fleet Street Publisher 3.0. Other software includes Kermit, TariTalk, Turbo Basic and various custom written programs on the XL/XE. Articles submitted on XL/XE disks are transferred across to the ST via TARITALK. Programs are coded on the XE and printed out directly for pasting in after the typesetting is completed. All major editing is done with Protext and pages are laid out with Fleet Street Publisher. Each page is output directly from Fleet Street to a HP Laserjet III which produces finished pages exactly as you see them. All that is left is to drop in the listings and photos.

Well, it's not quite as easy as that but you get the idea!

Inspiration

I can't remember what the inspiration was when I first started this issue back in September but during the week in which this was completed I was listening mostly to .... Celine Dion. Yes, I know it is not my normal fare but I had a tenner given me at Christmas and when wandering into Our Price was intrigued to see that the new Celine Dion CD had the theme from Titanic on it and I had a listen. It was surprisingly like something Enya or Clannad might do and so I took the plunge. Apart from one track which I have to skip every time I have been quite taken by the album, even (especially?) the duet with Barbara Streisand. Barbara Streisand? I must be getting old!

CONTRIBUTIONS

Without contributions from its readers, NEW ATARI USER would not be possible. PAGE 6 welcomes and encourages its readers to submit, articles, programs and reviews for publication. Programs must be submitted on disk or cassette, articles should wherever possible be submitted as text files on disk. We seek to encourage your participation and do not have strict rules for submissions. If something interests you, write a program or article and submit it!

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Editorial

At last we are back with a new issue and a new year. 1997 was a nightmare year for many personal reasons and I hope that this coming year will be better - a lot better!

The major problem last year in getting issues of NAU together was simply lack of time. A few years ago we could rely on the magazine and The Accessory Shop to make a bit of money to pay the bills but in the past eighteen months it has has only just paid for itself with nothing to spare. This made it crucial to find other areas to make a living and in 1996 I began doing craft fairs selling items that I make from different types of wood. As 1997 approached we decided to give this a go big time and so booked craft fairs for virtually every weekend in the following year. Although this meant having to produce stock every week I was sure that there would be times when I would catch up and could spare a week or so for a new issue of the magazine. It didn't work like that!

Because craft fairs are so expensive to do (sometimes over £150 a stand) I was under pressure each week to ensure that we had enough goods to sell each weekend. This meant that I was out in the shed from about nine in the morning till eight at night on Monday to Wednesday. Thursday was a 'finishing' day in which I needed the morning to start the process and was often up past midnight to finish off. Friday, in theory, was my day off but in practice was spent finishing off last minute things before the weekend's craft fair. This was often in some far flung place and so we often didn't even make it home on Saturday. Then the week would begin again. Occasionally I did have some spare time but things that I could not avoid then sprang up like my mother dying and having to spend almost a week fixing the car to get it through the MOT. That was what jinxed this issue. I actually did most of the work on this one back in September and only needed three or four days to finish it but then I had to do the car (else I couldn't do the craft fairs) and after that there simply wasn't one spare day until Christmas. It gets hectic in the run up to Christmas with the chance to make up for some of the losses earlier in the year. If I was making a fortune at this craft business I could afford to take a break now and then but it isn't like that with a constant pressure to try and make sure that next week's fair makes up for the bad one last week. I can just about scrape a living out of it.

This year I hope things will be different. In planning our craft fairs we have deliberately left a free weekend every two months so that I have a full week and the weekend in which to do a new issue of the mag. Hopefully this will get us back on our regular, and intended, bimonthly schedule. In between these times, however, I will be working seven days a week with little, or no, time to spend preparing for the next issue. It will all have to be crammed into that one week. *This is where I need your help.* On the contents page you will see a copy deadline for the next issue. If you intend to send in a contribution, or if you write regularly, please ensure that it reaches me by this date. I will not have time to remind you until its too late. Even better would be to send stuff well in advance. Do two or three columns or a couple of articles so that I don't have to worry about coming issues. You have no idea what sort of relief there is in knowing that I have plenty of contributions 'in the bag'. If you do not usually contribute then you can help by renewing your subscription as quickly as possible so that I don't have to worry about sending reminders or be concerned about how many copies of the next issue I need. It makes a big difference to know that readers are sticking with us and every renewal that comes in spurs me on to ensuring the mag continues. I have said before that there is no need to worry about future issues, when the time comes I will give you notice so that you don't waste your money.

I am doing my best this year to get back on track, giving up six potential money-earning craft fairs to get your magazine to you. Please do your best to help me out in the ways outlined above. If you buy a few more PD disks this year that will be a great help in making up some revenue I might lose at the craft fairs. It's going to be tough but I am sure that we can do it together.

Les Ellingham



NOSAUG NO MORE ...

Stuart Murray has finally decided to call it a day with Issue 21 of FUTURA issued in October of last year.

After a good number of years supporting the Atari community with a fine disk magazine Stuart has found that increasing work commitments and producing a regular issue of Futura don't go hand in hand. His spare time now is going to be taken up enjoying all the Atari Classic software he has accumulated over the years - software he has hardly had the time to play!

Stuart is not abandoning the Atari scene and may well contribute the occasional article to NAU in the future.

BUT FUTURA STILL AVAILABLE

Although no future issues of FUTURA are planned, Stuart Murray has given us permission to include all past issues in the PAGE 6 LIBRARY. If you have missed an issue or two, or indeed have not partaken of the delights of FUTURA you can now get back issues from The Accessory Shop at regular prices. Check out the regular order forms and update your collection.

VIDEO GAME CLASSICS

If you still have an Atari 2600 or 7800 then there is a chap in the States that might just have some software you have never seen before. Frank Polosky puts out an occasional catalogue of some very interesting ROM cartridges for various Video Game systems that includes a dozen each for the 2600, 7800 and 5200.

Perhaps more interesting to most of our readers is that he also has 15 ROMs listed for the Atari 400/800. Most of these seem to be Atari's old chestnuts like Centipede, Missile Command and Pole Position but he also has Astrochase, Buck Rogers, Qix and Return of the Jedi listed. The ROMs are $14.95 each with $3 overseas postage for the first item and $2 per item thereafter. Payment has to be made by International Money Order as he does not seem to take credit cards.

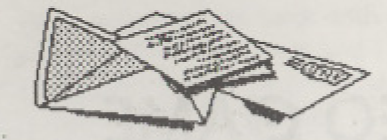
Perhaps the best bet is to get in touch and ask for a copy of his latest catalogue. Contact Frank M Polosky, P.O. Box 9542, Pgh PA 15223, USA. The phone number listed is (412) 7841-2241, evenings only 5pm to 8pm Eastern Standard Time. You need to add a 001 prefix from the UK and the UK time equivalent is Noon to 3pm.

Frank is also interested in buying or trading old VCS carts, so if you have any get in touch, it could be better than taking them down the Car Boot sale!

NEW ATARI USER/PAGE 6 BACK ISSUES

Due to lack of storage space we have had a major sort out of back issues and now have only a very few left. All issues from Issue 31 up to date are still available (except issues 32 and 35) but we have as little as *FIVE COPIES ONLY* of the earlier issues and only around TWENTY copies of the more recent ones. If you want them, check the Order Form now for they will soon be gone forever.

Mailbag



This issue's Mailbag conducted by Les Ellingham

PC CONNECTION

We start this issue's Mailbag with a mix of support and criticism from H S Wood of Bradford who says: "It is surprising that there have not been any letters to Mailbag because I wrote before Christmas (1996) about the programming of PIC's and the letter has not been published and I have not had an acknowledgement. Perhaps it went astray.

We need some new ideas if we are to keep NAU in print and I thought that PIC's might be one possibility. Currently PIC's are the province of PC's which is a pity because the 8-bit computers are quite capable of programming them. Several articles are written in Electronics magazines for clocks, keyboard controllers etc. but one has to have a PC. Also, if the technical information is to be obtained, the disks supplied are 1.44 Mb which rules out the simpler (cheaper) PC's. *[And the chance of reading them on an ST. Ed.]*

NAU should realise that a lot of time is spent in compiling information for projects such as the above and it is very discouraging to be ignored! More than that, to be continually informed that 'without your support NAU will cease to be' is adding insult to injury.

Another way forward is to use an emulator so that Atari programs can be used on a PC. This was mentioned in issue 81 by Richard Gore and I have also been testing it out. Where are the articles about this very exciting proposition? Like Richard I would be pleased to exchange notes about emulators with anyone who is interested.

Although I have a very capable PC, I still prefer my 8-bit for letter writing. I am writing this letter using WRITE which was published in NAU some time ago. WRITE does not spew out endless blank sheets when printing and it is not necessary to preset the number of sheets. The program stops when all the text has been printed.

I have done some work on a PC to Atari interface which currently will transfer files from the PC to the Atari but not the other way round. This had to be abandoned due to my wife's illness and my brother's death, however there seems to be some interest so I will restart as soon as possible.

As a final note to your readers. Has anyone found my two Monitors useful and what about the Discnote program? You readers do not deserve Les's dedication if you do not put pen to paper."

❢ *All letters addressed to Mailbag are put straight into a special Mailbag tray on the day they are received and the tray is retrieved as I start a new issue, so it does look as if your letter was not received, Mr Wood - sorry. New ideas are needed, certainly, and new articles and new programs but I do have difficulty in judging just how much interest there is in the interaction of Atari and PC. Many of the letters I receive from readers who do not wish to renew their subscriptions state that they have bought a PC and disposed of their Atari equipment. I very seldom get letters from readers to tell me that they have bought a PC and kept their Atari. Perhaps a few more people should write. We will touch upon the PC/Atari connection from time to time - in fact much of John Davison's column this issue mentions the possibilities of running Atari software on a PC - but I do need to know how much interest there is. If I fill the magazine with articles that only a dozen people read then it will do more harm than good. Does the possibility of hooking up to a PC excite you or bore you? Let us know one way or another.*

MICE

Paul Bramley from sunny Australia (at least it should be sunny as I type this with freezing fingers!) has a couple of questions about a well known computer rodent:

"Recently I purchased an Atari ST. In issue 79, I saw the bonus disk contained a program to use the mouse. In know The Brundles makes use of a mouse but could you, or any other reader, tell me of any other program that could use a mouse on the Atari 8-bit?

I also know that an IBM mouse can be converted over to be used on an ST or 8-bit. Perhaps you could include the connections required to do so in future editions, plus commands to control the mouse."

❢ *Well, there's another PC connection already! I have to admit that I never use a mouse on the 8-bit so I haven't paid much attention to what programs might be available. There are people who use a mouse, so let's have some answers from you, even if to say that you have not found any other programs at all!*

BACKING UP CARTS

John Hull from Merseyside has three questions to ask: "You have a disk that will transfer files or games to Disk or Cassette. Is there a disk that will transfer video cartridges to Disk? As we all know wear and tear does happen. I try not to use my ROMs too often but it would be good if I can transfer then over to disk so then I can put the cartridges away for another day.

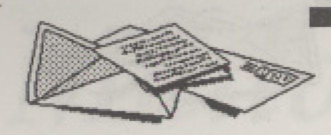
Secondly, when I got my second Atari 800XL I watched somebody transfer Star Raiders from cassette to disk by using Master Diskette 3. I forgot how he did it. Can you or someone out there shine some light on this one please?

Thirdly, I have seen some files with text in data. Can you tell me how this is done because I have tried the same many times and failed."

❢ *Transfer of ROMs to disk has been done many times in the past but I can't recall whether specially modified drives are needed. There are certainly programs in the Public Domain which claim to do this but I have not tried them out. In the past an article on this sort of thing would not have been published due to the piracy problem but times have changed and there is now a genuine need to back up all sorts of things and a need to share the information on how to do so. Although some software is still available, the chances of finding a replacement copy of most programs is virtually nil, so we all need to know how to safeguard our software investment. Let's have an in-depth article on backing up ROMs and disks, it's one of the few things on the Atari scene that we have not yet covered.*

BACK TO BASIC

Here's an easy one for someone to answer from Alan Milne in New Zealand: "I have a problem that you may be able to sort out concerning using Machine Language subroutines in BASIC programs. I know how to start them off, but how do you stop them so that BASIC can



take over again. One routine is the 3D STARS from ANALOG 16 (I don't have the magazine to refer to.)

Also does anyone know how to modify the XF551 disk drive so that it can format the second side of disks as my 1050 has died."

As the only way to access the second side of a disk on the 1050 is to flip the disk over and either use a write-protect (disable) switch, or cut a notch in the disk, I assume you need help along these lines. If cutting a notch in the disk does not work then the XF551 must use the timing hole on the disk but I would be surprised if that is the case. I used to have an XF551 drive but it died fairly rapidly so I hardly got to know it, but someone out there still uses one and should know the answer to this problem. As to the machine code problem, I am sure one of our programming wizard readers wil provide the answer.

SOME IDEAS

Graeme Fenwick from Dundee has probably forgotten he wrote this letter to Mailbag as it was tucked on the back of another letter and has only just come to light. Sorry, Graeme, let's know hear your ideas: " I've not done much with my Atari Classic in the past year or so (having spent an unusually high amount of time on it just before that - perhaps it's burn-out!), so I decided to mention a couple of things which other Atari users might be interested in.

For example how about a FREE scanner? Well, not quite, but you might be surprised that an Atari 1020 plotter with a light sensitive resistor and some suitable software can do just that. Okay the quality really sucks (contrast way too high, lighting's got to be right, sensor keeps falling off!) and it's pretty fuzzy, but for anyone who's interested a photo-resistor of 0 - 500 k/should do the job once its sensitivity has been dampened down and any extraneous light excluded. To be honest, you'll have to experiment. I could write an article about it but the idea needs refining (so does the software!).

Of course, you'll need to connect your resistor across potentiometer pins and write the software to move the head (which the sensor's attached to ... scanning see!) and plot the resulting brightness. Again, it's probably best to experiment with resolution, brightness and so on.

A word of warning though - a wrong connection to your Atari could prove hazardous to its health and sellotaping things to your printer head is a precarious idea at the best of times. Make sure you know what you are doing - I can't be held liable for any Atari-related accidents.

I know the details are a bit vague, but it's just an idea, nothing more. Give it a go!

Also, given the copyright discussion going on just now regarding software, couldn't the same be said of books? There must be plenty of Atari text that could go on the Net, if it's not already there - useful but rare stuff like De Re Atari.

As far as the Atari bug goes I may be bitten again soon, or it may not be for years, with just occasional games of Elektraglide, Shamus, NYC and Pro Mountain Bike Simulator (a hidden gem, particularly in 2-player mode).

Now that I look this letter over I realise I should have word-processed it, so I'll sign off with an apology to whoever's editing Mailbag this issue - sorry!"

It's okay, Graeme, thanks for taking the time to write.

FINALLY ... WRITE!

Long time supporter Joel Goodwin wrote almost immediately he received Issue 81 and had this to say: "I'd like to open this letter by offering my sympathies to Les in light of his recent loss. Les has always "been there" for the UK Atari community. I'm sure the has lost count of the hours that he has devoted to Page 6/New Atari User, especially these days when the Atari scene is more of a village than a metropolis and it is a lot harder to scrape together a full issue. Now would be the right time to "be there" for Les. I imagine the pressure would be less if Les had a few more articles or letters to print. I'd like to ask everyone to try and write a letter or an article for NAU, because without contributions the UK's longest running Atari magazine will fold earlier than it should. I'm guessing that I'm not the only one who'dlike to see the 100th issue!

Everyone has something unique to say or contribute. I'm sure that even your experiences on other computers in contrast to that on your own Atari would be welcome. Did you enjoy any articles you read? If so, why? Did you not enjoy any articles? There's plenty of room for feedback in Mailbag, I'm surprised we don't see more. However, I know that a lot of readers don't have much time to spare. Believe me, I really know how little "quality time" is usually available for the Atari computer that cries out for attention in the corner of your front room. A letter won't take long and, as Les has previously stated, it doesn't have to be a work of art. As long as it's got a point (mind you, there might be some flexibility here) and your handwriting is legible(!) then please write it and send it to NAU.

We can all moan about the price or delays between issues, but New Atari User is put together by, essentially, just two people: Les and Sandy Ellingham. No-one likes to blow their own trumpet, so I'll do it for them. It's no easy task to put together something which looks so professional on a regular basis. If anything, we should be surprised by the fact that we get so much in return for our subscription. This isn't Fleet Street. The magazine is only as good as its contributions. If you don't contribute then don't complain. There aren't many Atarians left; if we lose NAU then we lose a vital line of communication within the UK Atari community. None of us can stand back and blame others for dwindling support. We are that support."

Many thanks, Joel. No further comment needed.

That's it for this issue. If you have read this far, you know what to do. The address is:

MAILBAG
NEW ATARI USER
P.O. BOX 54
STAFFORD
ST16 1DR

John Hull's TOP TEN

BEST GAMES

1. **F-15 Strike Eagle**
2. **Silent Service**
3. **Gato**
4. **Tank Commander**
5. **Final Legacy**
6. **Battalion Commander**
7. **Star Raiders II**
8. **Rescue on Fractulas**
9. **Zybex**
10. **Mr Do**



PROGRAMMING

OBJET D'ART

Joel Goodwin begins a new series of articles for programmers which will attempt to persuade you to take a whole new approach to programming

1: Old Dogs, New Tricks

Programming can be a pain as much as a joy and even modest projects can involve substantial complexity. Pen and paper are useful allies but sometimes it can take several attempts to break down a difficult problem into a comprehensible programming plan.

This three-part article will introduce you to 'Object-Oriented Programming' (OOP), a technique used extensively in modern software development. OOP handles complexity very well and anyone with a serious interest in programming should certainly read on.

JUST FOLLOWING PROCEDURE

NAU readers may know of the programming approach known as 'procedural' programming (also referred to as 'functional' or 'structured' programming). The idea is to break up a program into lots of important subroutines. This makes the program easier to write. We can concentrate on individual sections of our program, test them separately and reuse them in other programs. It avoids the so-called 'spaghetti' programming where the program flow interweaves chaotically making debugging and reuse of code very difficult. The procedural approach has been extremely successful and is supported by any language you happen to mention. For example, Basic has 'GOSUB' and Turbo Basic has 'PROC'. Subroutines work best if you have some way of passing them data so that they are flexible. For example, if we have a 'Draw Circle' subroutine, we would like to pass it the centre and radius of the circle we wish to draw.

Even if you don't follow procedural programming religiously, it is hard to deny that this approach is fruitful. When some structure dominates a program, the development is faster due to a reduction in complexity. However, procedural programming doesn't go far enough. It is normally difficult to appreciate this without tackling something complex or seeing what is possible through a different approach. I shall try to demonstrate where the procedural approach fails.

WHERE IT GOES WRONG

So we break a program into separate units which can be tested and reused independently. However a situation may arise where several procedures need to be interdependent. If, for example, we had a collection of graphics routines they will need to share data - like "screen size" and "graphics mode number". This is necessary. To completely avoid interdependence makes programming a great deal more difficult and could result in a severe loss of efficiency. A line does need to be drawn, though, between how much of this blurring of subroutine borders is good and how much is bad. Too much gets us back to spaghetti programming. Simply breaking up the program into subroutines does not solve every programming dilemma. Something more is needed to formalise subroutine interdependence.

Another problem with the procedural approach is that it does not do enough to dissuade the programmer from over-optimisation. A fast program is the primary goal for many programmers but optimisation can force subroutines to be strongly dependent on one another and, even worse, cause several subroutines to coalesce into one. Despite the obvious structural difficulties this introduces, optimisation is usually very tempting.

Suppose we were writing a game with a monster and a player moving around the screen. Now we might write a MONSTER_MOVE and a PLAYER_MOVE routine, with a supporting PLOT routine. After a while, it appears that it would be better to write dedicated MONSTER_MOVE_PLOT and PLAYER_MOVE_PLOT routines, discarding the idea of a separate PLOT routine. This way performance is improved and the program will run faster. This doesn't sound like a bad thing immediately, but look at what we've done. Firstly, we end up writing the PLOT routine twice which also means there is twice as much opportunity for errors. Secondly, the resulting MONSTER/PLAYER routines are more complicated and will be harder to debug. Previously we could have tested the PLOT and MOVE routines separately but now larger chunks of code need to be tested. Thirdly, we might find that the game is actually boring with just one monster and need to add several more. For each monster, we now have to rewrite the PLOT routine because we have lost the flexibility offered by maintaining an independent PLOT routine. It is better to keep our options open; we may even find that the PLOT routine is good enough to use in future programs.

This example highlights the dangers of optimisation and interdependence in general:

- ❖ Longer development time
- ❖ Debugging is more difficult
- ❖ High inflexibility/reusability

Speed should not be the top priority - a working program should be. Admittedly, speed may become an issue, especially when using Basic, but for a fast language or machine language itself, speed should always be a secondary consideration. Modern software development is extremely complex and to sacrifice structure in favour of performance is potentially disastrous. Of course, there is

only so much complexity that can be implemented on the humble 8-bit Atari but the design methodologies of modern programming can be just as beneficial.

A MATTER OF PERSPECTIVE

Generally, programming is a process which forces the programmer to think like the computer. Subroutines are a handy way of reducing complexity but the whole thing is still very abstract, it makes little difference to the psychology of the process. People do not think naturally in terms of subroutines.

To demonstrate this, think of the television. It has inputs - power, channel, volume and so on. It has outputs - the screen and the speaker. There is also lots of electronics inside which we need to know nothing about to operate a television correctly. In fact, if we had to learn about electronics to use a television, we might give up Eastenders altogether and read the latest Jilly Cooper novel. Or maybe not. The point is that we perceive the world in terms of objects of which we only learn what we need to. To learn about the detailed ins and outs of the television, the kettle, the dishwasher, or even the molecular composition of deodorant is normally counterproductive.

Now consider an example based inside the Atari. While the programmer might like to think of the screen display as a single entity, the reality of the computer environment is very different. Various resources related to the screen are scattered about the computer memory and behave in different ways. For example, the shadow and hardware colour registers are located at "opposite ends" of the memory and the distinction between the two may not be clear at first. Of course, the screen handler "S:" can be used to centralise the graphics capabilities to some extent. This gives the display a strong identity. We can set up a graphics mode and interact with it using a relatively simple interface (using IOCB calls in ML or PLOT/PRINT/LOCATE in BASIC). Through the screen handler, the display feels like a concrete object which has various inputs, outputs and plenty of stuff going in the background which we are blissfully unaware of.

If we can model the human perception of the world (i.e. in terms of distinct objects) within a programming environment then programming might become a far more natural process. We have now arrived at the concept of 'Object-Oriented Programming' or OOP for short. The emphasis is on objects conceived by the programmer, rather than any structures dictated by the computer.

This idea sounds very natural but to program this way means reversing some of the bad habits of old such as the tendency to optimise ad infinitum. OOP also requires a lot of careful planning before going near the computer, while the procedural approach can tempt the programmer to start bashing at the keyboard without thinking out the program first. To properly understand OOP, gentle coaxing is required but once you get there you might realise, like I did, that you've been thinking this way all along.

POINT

X	Y

RECORD

NAME	AGE	ADDRESS	OCCUPATION

PLAYER

X	Y	DIRECTION	COLOUR	SHAPE

Figure 1. Examples of datatypes

Four key concepts lie at the heart of the OOP approach: Data Abstraction, Encapsulation, Inheritance and Polymorphism. We'll go through them one by one.

DATA ABSTRACTION

Put simply, data abstraction is the ability to develop new types of variables, which we shall call 'datatypes'. While Atari Basic supports floating point numbers and strings, we could easily come up with some useful ones of our own. As a lot of programs involve screen positions, we might want to create a POSITION datatype which holds both the X and Y coordinates. If you were able to use this new datatype, then all of your subroutines could simply refer to a POSITION variable (say, POS1) instead of X and Y separately. Clearly, more complicated datatypes could be devised. Examples are given in figure 1.

This is not just superfluous packaging; it is a way of enforcing structure. With a language such as Atari Basic, it is convenient to plan a program with datatypes in mind even though Basic will not support them. Think of the database RECORD example; all databases are written with this type of structure included but they may not be programmed in a language which can create a RECORD datatype. It doesn't matter - the structure is more important. As far as I am aware, there is only a version of C, C/65, which supports data abstraction on the 8-bit Atari.

Before we proceed to the next concept, the distinction between datatype and variable must be made clear. If we consider Atari Basic strings, then 'STRING' is the datatype and A$, BR$ and RJE$ are all examples of 'STRING' variables. The datatype is the structure, while the variables are actual instances of this structure.

PLAYER

X
Y
DIRECTION
COLOUR
SHAPE
INITIALISE subroutine
STAND subroutine
WALK subroutine
JUMP subroutine
PLOT subroutine

Figure 2. Basic encapsulation

ENCAPSULATION

Suppose, now, that a datatype could be extended to contain subroutines. Moreover, suppose a datatype could also hide some of its internal data so that only its own subroutines could access it. This is the idea of "encapsulation". Look at figure 2. We have extended the PLAYER datatype to include subroutines which refer to PLAYER variables. This means that if we reused this datatype in another program we would not have to worry about whether it would need adapting; all of the relevant code is 'encapsulated' within the datatype.

We can go further than this; look at figure 3.

Now we have divided up the internal structure of the PLAYER datatype into a "public" section and a "private" section. The public data/subroutines are available to an external program. The private data/subroutines, however, can only be accessed by the datatype's own subroutines. This means that when we use this datatype, we are automatically barred from using certain data and subroutines. Consequently, we do not need to worry so much about what we should not alter or meddle with.

We are no longer dealing with an ordinary datatype; to make the distinction clear, a datatype with encapsulation will be called a CLASS. Also, instances of a class will not be called variables - they will be called OBJECTS. Now we have reached our original goal, to mimic the human perception of individual 'objects' in a programming framework. A programmer's object will contain data and subroutines; private data and subroutines are the hidden machinery which an external program does not need to know about.

PLAYER

Public	Private
COLOUR	X
SHAPE	Y
INITIALISE subroutine	DIRECTION
STAND subroutine	PLOT subroutine
WALK subroutine	
JUMP subroutine	

Figure 3. Strong encapsulation

PLAYERPLUS

Public	Private
PLAYER object	AMMUNITION
SCORE	
LIVES	
SHOOT subroutine	
RELOAD subroutine	

Figure 4. Extending PLAYER by nesting it in a new class

INHERITANCE

Suppose we had the PLAYER class as shown in figure 3. In a later program, the PLAYER class might not be as perfect as it was for the original program. Maybe we'd like to add a few bits: A LIVES counter? A SHOOT subroutine? The difficulty is that classes are intended to be self-contained; to go back and pull the code to pieces to include new subroutines defeats the whole point.

One approach is shown in figure 4. We could simply make a new class PLAYERPLUS and put a PLAYER object inside it. In this way PLAYERPLUS is just like the PLAYER class with some bits added on. However, this is structurally clumsy; to refer to original elements of PLAYER means we have go through two 'interfaces' - once through PLAYERPLUS then again through PLAYER.

Figure 5 shows what we really want. We want PLAYERPLUS to be exactly PLAYER plus some other data/subroutines without having to re-invent the wheel. The capacity to do this is called 'inheritance'. PLAYERPLUS is said to have inherited data and subroutines from PLAYER; such a class is sometimes known as 'subclass' of PLAYER or a 'derived class'. Extending old code is natural and safe when done through an inheritance mechanism.

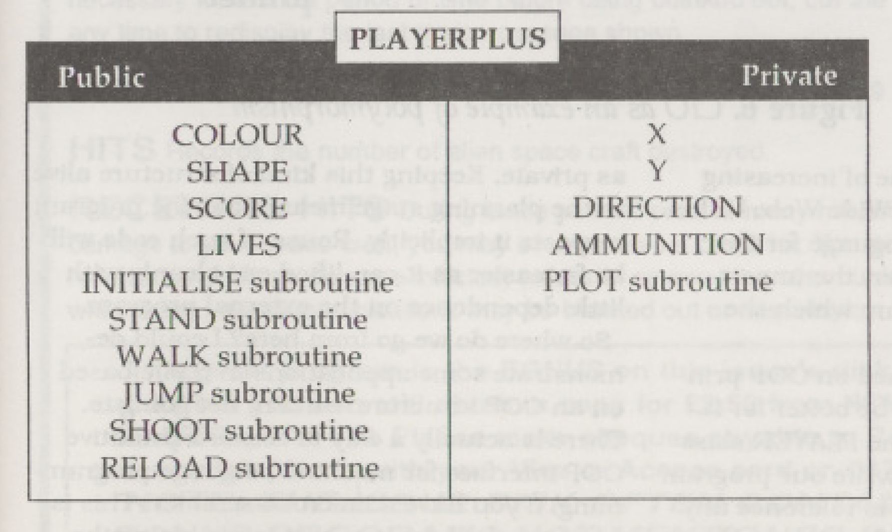
POLYMORPHISM

Some consider a program not to be object-oriented at all unless it implements what is known as "polymorphism". This idea is important when you build a class which is to be extended in the future.

Suppose I had several different PLAYER classes in mind, say RED, GREEN and BLUE. Each one has a different SHOOT subroutine. What I could do is create a PLAYER class with a SHOOT subroutine, and arrange it so that any classes that inherit PLAYER can have their own SHOOT subroutine - they do not necessarily inherit the original. So I go ahead and derive the RED, BLUE and GREEN classes from PLAYER, giving each one its own SHOOT subroutine. Why is this a good thing? Well, when your program tells an object to SHOOT it does not need to know whether it is dealing with a RED, BLUE or GREEN object. The correct subroutine would be called automatically; in fact, your whole program could be based on PLAYER objects and it would behave correctly when faced with RED, BLUE or GREEN objects. This is an extremely powerful aspect of OOP. You could even go back to this program later and add a new PLAYER subclass called YELLOW with its own SHOOT subroutine - and it would be incorporated without problems!

Within the Atari Operating System exists an excellent example of object-oriented design featuring polymorphism - the Central Input/Output (CIO) mechanism. Many functions are run through CIO, ranging from manipulation of the screen display to interfacing with a modem. CIO manages 8 IOCBs (Input/Output Control Blocks) which act as channels for the CIO operations. An IOCB has a variety of inputs and outputs of its own: command number, buffer address, auxiliary numbers etc. As an IOCB can be linked to different handlers (such as C:, D:) the effects of a command sent to it are dependent on what handler is in play.

In the CIO example, we can label various elements with OOP terms. The handlers are classes which can be considered to have been derived from some abstract class; the IOCBs are objects of these handler classes. There are many subroutines which each IOCB object recognises, such as OPEN, READ or WRITE



PLAYERPLUS

Public	Private
COLOUR	X
SHAPE	Y
SCORE	DIRECTION
LIVES	AMMUNITION
INITIALISE subroutine	PLOT subroutine
STAND subroutine	
WALK subroutine	
JUMP subroutine	
SHOOT subroutine	
RELOAD subroutine	

Figure 5. Extending PLAYER by inheritance

but, crucially, the effect of such a call depends on which handler class the IOCB belongs to - see figure 6. This is a complex system of polymorphism which can be extended further by user-defined handlers.

FINE IN THEORY

What does this all mean when it comes to down to programming? The best way to use OOP is get an OOP language which supports class creation, inheritance and polymorphism. There are many such languages on modern computing platforms. C++ is an extension of the popular low-level language C, which is gaining its own popularity as a widely-used OOP language. Java is receiving a lot of attention currently as it was devised for the purpose of increasing the capabilities of the World Wide Web. Unfortunately, there is no OOP language for the Atari but, as was noted earlier, the importance of OOP is in the structure which the programmer conceives.

If we develop a program based on OOP principles then our program will be better for it. For example, if we think of the PLAYER class shown in figure 3, we could write our program promising ourselves NEVER to reference any of the private data/subroutines. We could put REMs or comments near them to mark them as private. Keeping this kind of structure alive in the planning stage means that the program respects it implicitly. Reuse of such code will be far easier as it can lifted out cleanly with little dependence on the external program.

So where do we go from here? I could demonstrate some applications in Basic based on an OOP structure, but I'm not going to. There is actually a way to create a primitive OOP interface for machine language programming, if you have a macro assembler. This is what we shall explore next issue, using the MAC/65 macro assembler. See you then. ●

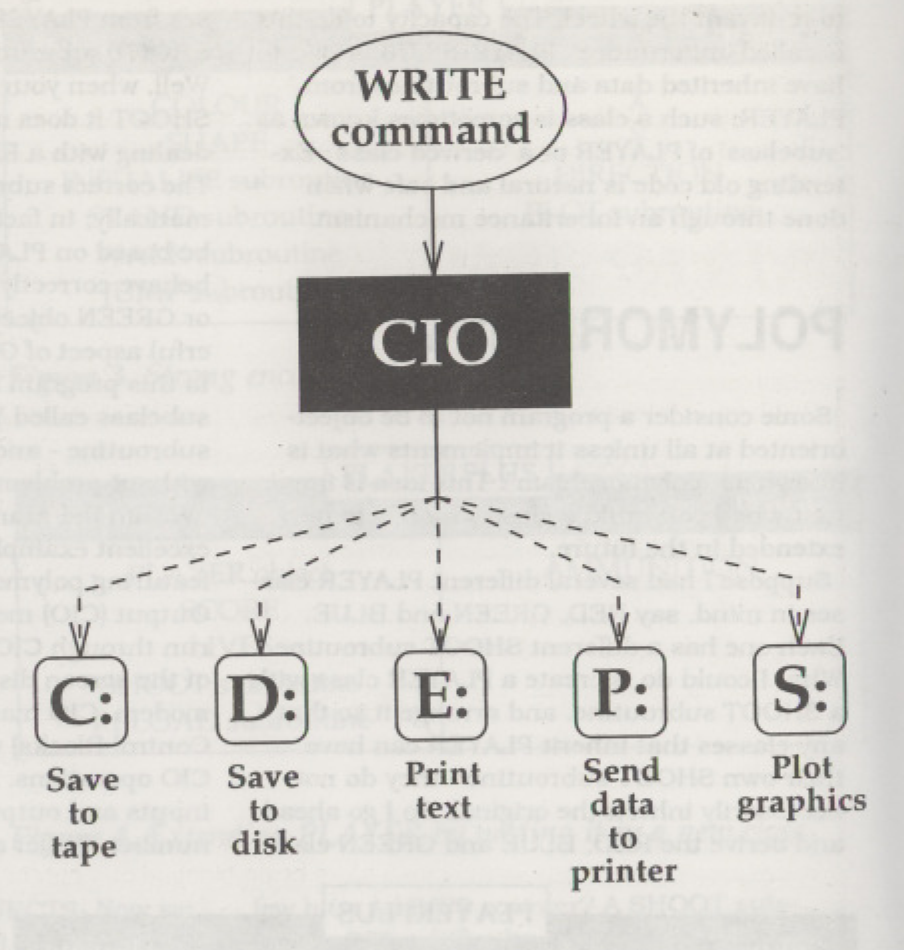


Figure 6. *CIO as an example of polymorphism*

DISK BONUS

SPACE FIGHTER

A machine code game by John Foskett

An alien race is attacking the Earth and your mission is to defeat the alien fleet and to defend the Earth. You must use your space craft's weapon systems wisely because they all consume fuel which must last for the duration of your battle.

THE WEAPON SYSTEMS....

LASER CANNON The laser cannon is used to destroy the alien fleet and is controlled by using a joystick in port 1, use a joystick with diagonal movement otherwise you will be severely restricted. The laser may be fired using the trigger in the normal way or by using the autofire facility described below.

AUTOFIRE <AUTO> The autofire facility is used to fire the laser automatically when on target and is toggled on/off by pressing the "A" key.

FORCE FIELD SHIELDS <SHLD> The force field shields are used for protection against the alien fleet and are toggled on/off by pressing the "S" key. When the shields are in use, space takes on a bluish hue. The shields do not give complete protection against the alien fleet but they greatly reduce the chances of being hit.

ENGINES <ENGN> The engines are toggled on/off by using the "E" key, but they must be on in order to chase the alien fleet around the skies.

COMMUNICATIONS <COMM:> All relevant information is displayed on screen as necessary for a short period of time before being blanked out, but the "L" key may be pressed at any time to redisplay the last major message shown.

FUEL Displays the amount of fuel remaining which begins at 9999.

HITS Records the number of alien space craft destroyed.

RECEIVING HITS During battle you will receive many hits, some will be major causing damage to your space craft, you may even receive a direct hit. You will be kept informed of all hits received and of any damage inflicted, unless of course your communications have been damaged in which case your communications may be blanked out or may display rubbish.

This great program is the BONUS on this issue's disk. If you are not a disk subscriber you can still obtain a copy for £2.50 from NEW ATARI USER, P.O. BOX 54, STAFFORD, ST16 1TB. Please make cheques payable to PAGE 6 PUBLISHING or order by telephone with your Visa or Access card on 01785 241153

NOTE: THE ISSUE DISK OFTEN CONTAINS ADDITIONAL BONUS PROGRAMS NOT MENTIONED IN THE MAGAZINE



PROGRAMMING

NEWTON'S SQUARE ROOT

by David Sargeant

Ever wondered how square roots were calculated before computer's came on the scene? Newton worked out this algorithm:

1. Begin by choosing a number, integer or floating point, for which you want to find the square root and make a rough guess at the answer
2. Find the ratio of the number and the guess
3. Find the average of the ratio and the guess
4. If the ratio is approximately equal to the guess then the average is the square root required
5. Otherwise, take the average as being the new guess and repeat from step 2

The program coding for this algorithm is fairly straightforward to follow and the variables used are self-evident, but some may need further explanation. The Atari Classic, and any other computer for that matter, cannot handle very small numbers to any great degree, which sometimes limits the accuracy of calculating square roots containing fractions. If the Calculation procedure were ended when RATIO and GUESS were equal there would be some cases where this condition would never be true and the loop would never end. Using P prevents this by indicating the precision of the answer required and ending the loop when the difference between RATIO and GUESS is within this limit.

Having said that, there are still some instances where the calculation would tie up the computer for long periods. MAX and COUNT are used to limit the number of iterations of the loop to something sensible. Before the calculation is started, COUNT is zeroed and incremented on each loop iteration. If COUNT ever gets to be greater than MAX the loop is ended and in this case the answer given is only an approximation.

VARIABLES

NUMBER	Number accepted from user
P	Precision of answer
MAX	Maximum number of iterations
GUESS	Guess at the square root
COUNT	Loop counter
FLAG	Answer found? 0=false 1=true
RATIO	Ratio of number and guess
AVERAGE	Average of ratio and guess


```
UA 10 REM ***************************
FD 11 REM *   NEWTON'S SQUARE ROOT   *
OL 12 REM *    BY DAVID SARGEANT     *
EY 13 REM *      (TURBO BASIC)       *
LI 14 REM * ------------------------ *
BH 15 REM * NEW ATARI USER - JAN 98  *
UM 16 REM ***************************
JC 100 --
WG 110 # MAIN
CV 120 EXEC INIT
BK 130 WHILE NUMBER
MJ 140 EXEC CALCULATE
TV 150 INPUT "Enter number (0 to quit) >"
   ,NUMBER
PR 160 WEND :END
JQ 170 --
JS 180 --
GU 190 PROC INIT
PU 200 GRAPHICS %0:? "         NEWTON'S SQ
UARE ROOT ":? :?
KS 210 P=1E-08:MAX=100
TG 220 INPUT "Enter number (0 to quit) >"
   ,NUMBER
VQ 230 ENDPROC
JL 240 --
JN 250 --
PZ 260 PROC CALCULATE
TI 270 GUESS=NUMBER/2:COUNT=%0:FLAG=%0
PZ 280 REPEAT
KI 290 RATIO=NUMBER/GUESS
UR 300 AVERAGE=(RATIO+GUESS)/2
SJ 310 IF ABS((RATIO-GUESS))<P
XG 320 FLAG=%1:ELSE
SR 330 GUESS=AVERAGE:COUNT=COUNT+%1
HU 340 IF COUNT>MAX
NG 350 ? "  Not converging in ";MAX;" ite
   rations"
PO 360 FLAG=%1:ENDIF :ENDIF
KD 370 UNTIL FLAG
XP 380 ? "  Square root is ";GUESS:?
WD 390 ENDPROC
JF 400 --
```

Underline = INVERSE CHARACTERS · [ ] = CONTROL + CHARACTER · < > = INVERSE CONTROL + CHARACTER

John Hull's

TOP TEN

WORST GAMES

1. Jump Jet
2. Mountain King
3. Zombies
4. Pitfall
5. Gumball
6. Kazoo
7. The Eidolon
8. Fighter Pilot
9. Invasion
10. Rogue

BEST SOUND/MUSIC

1. Video Classics
2. World Karate Championship
3. Drol
4. Laser Hawk
5. Beta Lyrae
6. Bruce Lee
7. Cosmic Tunnels
8. 180
9. Mr Do
10. Starquake

Got a Top Ten of your own? Why not send it in, we can always use little snippets like this when there is a bit of space to fill

DID YOU HEAR ANYONE SAY GOODBYE?

This article was posted on the Internet some eighteen months ago but strangely two readers sent it in to us within a week of each other after the last issue. Perhaps it has only just reached its intended audience? Although much of this is now history, the article gives some fascinating insights into the demise of Atari and reflects the feelings of many of us.

by Donald A. Thomas Jr.

It's odd to imagine an institution which was as big and as powerful as Atari once was to have been shut down in recent days. The real amazement for me is that it was all accomplished without a measurable flinch from within or outside the gaming industry. I can understand that gamers wanted to push Pong out the door early in the time-line. I can appreciate that the classics such as Missile Command and Asteroids do not push 32-bit and 64-bit systems to any technological limits. I know all these things intellectually, but the heart cannot face the truth that the world and the corporate machine known as Atari could not find an amicable way to coexist.

On Tuesday July 30, 1996, Atari Corporation took each and every share if its company (ATC), wrapped them all in a tight bundle and presented them to JTS Corporation; a maker and distributor of hard disk drives. On Wednesday, the shares were traded under the symbol of JTS. Within a few weeks, the remaining staff of Atari that were not dismissed or did not resign, moved to JTS's headquarters in San Jose, California. The three people were assigned to different areas of the building and all that really remains of the Atari namesake is a Santa Clara warehouse full of unsold Jaguar and Lynx products.

THE PROMISE OF RICHES

It was only as long ago as mid '95 that Atari executives and staff believed things were finally taking a better turn. Wal*Mart had agreed to place Jaguar game systems in 400 of their Superstores across the country. Largely based on this promise of new hope and opportunities that open when such deals are made, Atari invested heavily in the product and mechanisms required to serve the Wal*Mart chain. But the philosophical beliefs of the Atari decision makers that great products never need advertising or promotions, put the Wal*Mart deal straight into a tailspin. With money tied up in the product on shelves as well as the costs to distribute them to get there, not much was left to saturate any marketplace with advertising. While parents rushed into stores to get their kids Saturns or PlayStations, the few that picked up the Jaguar were chastised by disappointed children on Christmas day.

In an effort to salvage the pending Wal*Mart situation, desperate attempts to run infomercials across the country were activated. The programs were professionally produced by experts in the infomercial industry and designed to permit Atari to run slightly different offers in different markets. In spite of the relatively low cost of running infomercials, the cost to produce them and support them is very high. The results were disappointing. Of the few thousand people who actually placed orders, many of them returned their purchases after the Holidays. The kids wanted what they saw on TV during the day! They wanted what their friends had! They wanted what the magazines were raving about!

In early 1996, Wal*Mart began returning all remaining inventory of Jaguar products. After reversing an 'advertising allowance' Atari was obligated to accept, the net benefit Atari realised was an overflowing warehouse of inventory in semi-crushed boxes and with firmly fixed price and security tags. Unable to find a retailer willing to help distribute the numbers required to stay afloat, Atari virtually discontinued operations and traded any remaining cash to JTS in exchange for a graceful way to exit the industry's back door.

Now that JTS has 'absorbed' Atari, it really doesn't know what to do with the bulk of machines Atari hoped to sell. It's difficult to liquidate them. Even at liquidation prices, consumers expect a minimal level of support which JTS has no means to offer. The hundreds of calls they receive from consumers that track them down each week are answered to the best ability of one person. Inquiries with regard to licensing Atari classic favourites for other applications such as handheld games are handled by Mr. John Skruch who was with Atari for over 13 years.

ATARI WAS FIRST

In spite of Nintendo's claim that their newest game system is the first 64-bit games system on the market, Atari Corporation actually introduced the first 64-bit system just before Christmas in 1993. Since Atari couldn't afford to launch the system nationwide, the system was introduced in the New York and San Fransisco markets first. Beating the 32-bit systems to the punch (Saturn/PlayStation), Atari enjoyed moderate success with the Jaguar system and managed to lure shallow promises from third-party companies to sup-

port the system. Unfortunately, programmers grossly underestimated the time required to develop 64-bit games. The jump from 8-bit and 16-bit was wider than anticipated. In addition, Atari was already spread thin monetarily, but were required to finance almost every title that was in development.

After the initial launch, it took Atari almost a year before an assortment of games began to hit the store shelves. Even then, having missed the '94 Holiday Season, many of the planned titles were de-accelerated to minimize problems caused by rushing things too fast. Consumers were not happy and retailers were equally dismayed. The few ads that Atari were able to place in magazines were often stating incorrect release dates because that information changed almost every day although magazines deadline their issues up to 120 days in advance.

JACK TAKES OVER

It was in 1983 that Warner Communications handed Jack Tramiel the reins of Atari. By this time, Atari was often categorised as a household name, but few households wanted to spend much money on new software and the systems were lasting forever. No one needed to buy new ones. That, combined with Warner's obscene spending amounted to a *daily* loss of over $2 million. Atari was physically spread all over the Silicon Valley with personnel and equipment in literally 80 separate buildings; not considering international offices and manufacturing facilities. Mr. Tramiel took only the home consumer branch of Atari and forced Warner to deal with the arcade divisions separately. Within a few years, Jack took the company public, introduced an innovative new line of affordable 16-bit computers and released the 7800 video game system.

To accomplish these miracles for Atari, Jack implemented his "business is war" policies. While people who publicly quoted his statement often felt that policy meant being extremely aggressive in the marketplace, the meaning actually had closer ties to Tramiel's experience as a concentration camp survivor. Of the 80 buildings in Sunnyvale, Santa Clara and Milpitas, almost every one of them were amputated from Atari's body of liabilities. The people, the work, the heritage, the history were fired or liquidated. Those who survived were unsympathetically required to fill in the gaps and while most tried, few actually found a way to successfully do what a dozen people before them did. Atop the mountain, Jack pressed with an iron thumb. All Fed/Ex mailings were required to be pre-approved by one of a handful of people. "Unsigned" purchase orders went unpaid regardless of the urgencies that inspired their creation. Employees found themselves spending valuable time trying to find ways around the system to accomplish their jobs. Many of them lost their jobs for bending the rules or never finding a way to make things work. As horrible as it all sounds, it actually was the only way to protect Atari as a company and give it a chance to survive as it did and did very well.

EUROPE BECKONS

Jack's introduction of the 16-bit computer was initially hearty in the United States but it went extremely well in Europe. Europeans were not accustomed to 'affordable' technology and although the Atari computers were not IBM compatible, it didn't matter because people could afford them. Jack's private laugh was that the computers were sold at prices much higher in Europe than Americans were willing to pay. As a result, most of the machines made were being shipped to European destinations to capture the higher margin. This enraged the people of the United States that had been Atari loyalists. While waiting months for stores to take delivery domestically, international magazines were touting ample supplies. Those in the know within the U.S. became dismayed. The remainder never knew Atari was slowly abandoning the value of Atari's name recognition as it became easier and easier to forget, some assuming Atari had long filed for bankruptcy.

On a technical level, Atari 16-bit computers were designed beyond their time. For less than $1,000, consumers could enjoy "multimedia" before the phrase was really widely used. The icon-based working environment preceded Windows popularity although the essential attributes of the two environments were very similar. MIDI was built-in and became an instant hit in the high-end music industry. Tasks were activated and manipulated with a mouse and the system accepted industry standard peripherals such as printers, modems and diskettes.

A WHOLE NEW WORLD

With all the genius that went into the technology of the machines, very little of equivalent genius went into promoting and marketing the machines. Mr. Tramiel was the founder of Commodore Business Machines. when he introduced the PET computer in 1977, Jack discovered he didn't have to call a single publication. Instead they all flocked to his door demanding an opportunity to see the product. News magazines. Science journals. Business newsletters. Newspaper reporters. They were all there with a microphone, camera and pen in hand. And they kept coming back. Adding a switch, announcing a new 4K application or signing a new retailer were all big stories the press wanted to handle.

Today, a new video game announcement may generate a request from any of the dozens of gaming magazines for a press release, but a lot of costly work has to be done to assure fair or better coverage. Editorial people are literally swamped with technical news. Samples are mailed regularly to their attention. Faxes fly in through the phone lines and e-mail jams up their hard drives. It takes a lot to grab their attention.

While Atari retained hopes to be successful with the Jaguar, Atari's marketing people were fighting established standards in the industry with severe handicaps. Since cartridges (the Jaguar was/is primarily a cartridge-based system) were so expensive, editorial people were required to return them before new ones would be sent. Editorial people like to assign review projects. So finding cartridges they sent out was not always easy to do. Additionally reviewers love their work because they get to keep what they write about. Regardless, the few magazines willing to cover Atari products were more often turned away because of a lack of programmable cartridges or any number of other indecisive barriers. In-store signs and posters were sometimes created, but many retail chains charge premiums to manufacturers that want to display them. Some direct mail campaigns were implemented, but Atari often could not afford to keep those things being advertised on schedule. Therefore, the advertisements were published and distributed, but the product was not available.

Clearly, Jack's experience with the world beating a path to the door of a company making a better mousetrap no longer applied. The world had revolved a few times beneath him and he never noticed. The tactics used to successfully sell Commodore computers were simply antiquated notions from the past. Meanwhile, Sony launches the PlayStation with over $500 million in marketing funds. Today, the PlayStation is considered the most successful next-generation gaming machine throughout the world. Sony bought the mar-

ket. Tramiel's Atari never learned how to do that. Actually they could never afford it anyway.

PC POWER

After the 1990's got underway, Europe as well as the rest of the world, discovered that IBM-compatible computers were becoming more powerful and more affordable. The world always did want computers at home just like in the office and companies like Dell and Gateway exemplified the industry's trend toward home-based office computers. As a result, companies like Commodore, Atari and Next couldn't compete any longer. While the dedicated user base of each of them felt abandoned by these companies having to leave the computer market, the inevitable prevailed. Commodore jumped ship, Next changed business goals completely and Atari invested what they had left in the Jaguar game system. Even today, Apple is kicking and screaming. As good as Apple was at creating a huge niche for themselves, they focused more heavily on education. When kids grow up and get jobs, they want business machines. IBM was always the business standard.

UNANSWERED QUESTIONS

When one examines the history of Atari, an appreciation can grow for how many businesses and people were a part of the game over the years. Chuck E. Cheese Pizza was started by Atari's founder Mr. Nolan Bushnell. Apple Computer was born in a garage by ex-Atari employees. Activision was found by Ace Atari programmers. The list goes on and on.

But for some pathetic reason Atari's final days came and went with no tribute, no fanfare and no dignified farewells. Why? Where did all the talent go? Where are all the archives? Where are all the vaults? Where are the unpublished games and where are the originals of those that were? Why has no company stepped forward to adopt the remaining attributes Atari has to offer? Where are the creditors? What has happened to all the properties and sites? Where are the databases, warranty cards, promotional items, notes on meetings, unanswered mail? Who owns P.O. Box 61657? Who goes to work in Atari's old offices? Where do consumers have their systems fixed? Who is publishing new games? Who still sells Atari products? Why are there still a lot of people talking about Atari on-line.

I'm an ex-Atari employee and proud to have been. I'm still an Atari devotee and proud to be. To me, these are questions which all deserve an answer, but who will ask them?

The best people to ask these questions of are those who have exposure to the public. If you believe Atari left us without saying goodbye, contact Dateline at dateline@nbc.com. If you REALLY believe, then send this article to 10 of your friends in e-mail. AND if you REALLY, REALLY believe, mail a few to newspapers or other news programs. A letter in your own words would be great!

I'd spend money for a thorough retrospect on Atari. Wouldn't you?

Wouldn't it at least be nice to say "Goodbye"?

Don Thomas
75300.1267@compuserve.com

The author has given permission for this article to appear in New Atari User. It is printed in its original form except for the paragraph headings which have been added to improve presentation in the printed form. Our thanks go to Joel Goodwin and Avram Dumistrescu for spotting it on the Internet and sending it in.

ATARI AT THE MOVIES

by Dean Garraghty

I have been keeping an eye out for any Atari 8-bits popping up in films and TV, and I've found a FEW, but I'm sure there must be MANY more. Back in the early 80's when 8-bit computers in general were all we had, film makers wanting a computer in the background or as part of the main film had to choose from a range of computers, and sometimes they chose the Atari 8-bit. Here is my list of films in which an Atari 8-bit appears:

D.A.R.Y.L (1986) - You ALL should know about this one. An 800XL appears more than the actors!! The 800XL is used extensively, and Pole Position appears for quite some time also. Later in the film a large bank of TVs show a myriad of Atari games being played.

VIDEODROME (1982) - Not easy to spot this one, but if you have a chance to see this film, keep a look out when they are in the small TV station lab. On a bench at the back of the room is an 800 with an 810 disk drive next to it.

AIRPLANE! (1980) - A bit of a cheat this one, because the computer itself doesn't appear, but a game does. Near the end when they are in the air traffic control centre, one of the screens is showing Basketball being played, which is one of the Atari's very first cartridges from 1979.

As far as TV programmes are concerned, it is extremely difficult to check because it is almost impossible to get to see any programmes of this sort of vintage. We'll have to wait for repeats and all keep a look out! However, I have spotted an Atari 8-bit in a couple of programmes.

TRIUMPH OF THE NERDS (1996) Channel 4 - I hope you all watched this fascinating look at the history of computers. Although many computers featured in this, the Atari never did. However, if you look closely there is an 800 with an 810 disk drive on one of the shelves in the garage!

4 COMPUTER BUFFS (1985) Channel 4 - This short-lived computer programme from Channel 4 was an attempt to compete against the excellent and much missed "Micro Live" from BBC2. An 800XL with programmer appeared on the first programme, because the guy had created new opening titles for the programme using an Atari. Anybody know who this guy was?

As I said earlier, there must be LOADS more examples of the Atari popping up in films and TV. As a guess, I would say they are likely to be exclusively American, because most British films and TV programmes just used the old BBC Micro. They are also likely to have been made between 1979 and 1986/87. Now here's the challenge: keep a look out and make a note of any films or TV programmes that have an Atari 8-bit in them somewhere, even if it is just part of the background. If you find any please send them directly to me and I'll produce an updated article for a future issue.

Dean Garraghty, 62 Thomson Ave, Balby, Doncaster, DN4 0NU

HEY! HEY! it's The TIPSTER

This issue is given over to James Mathrick's help on a couple of Public Domain adventures you will find in the PAGE 6 Library. If you have not played these games before, or indeed never tried an adventure, now is the time to boot up the disks and have a go. When you get hooked, go on to play some more and send us in your own hints, tips and maps.

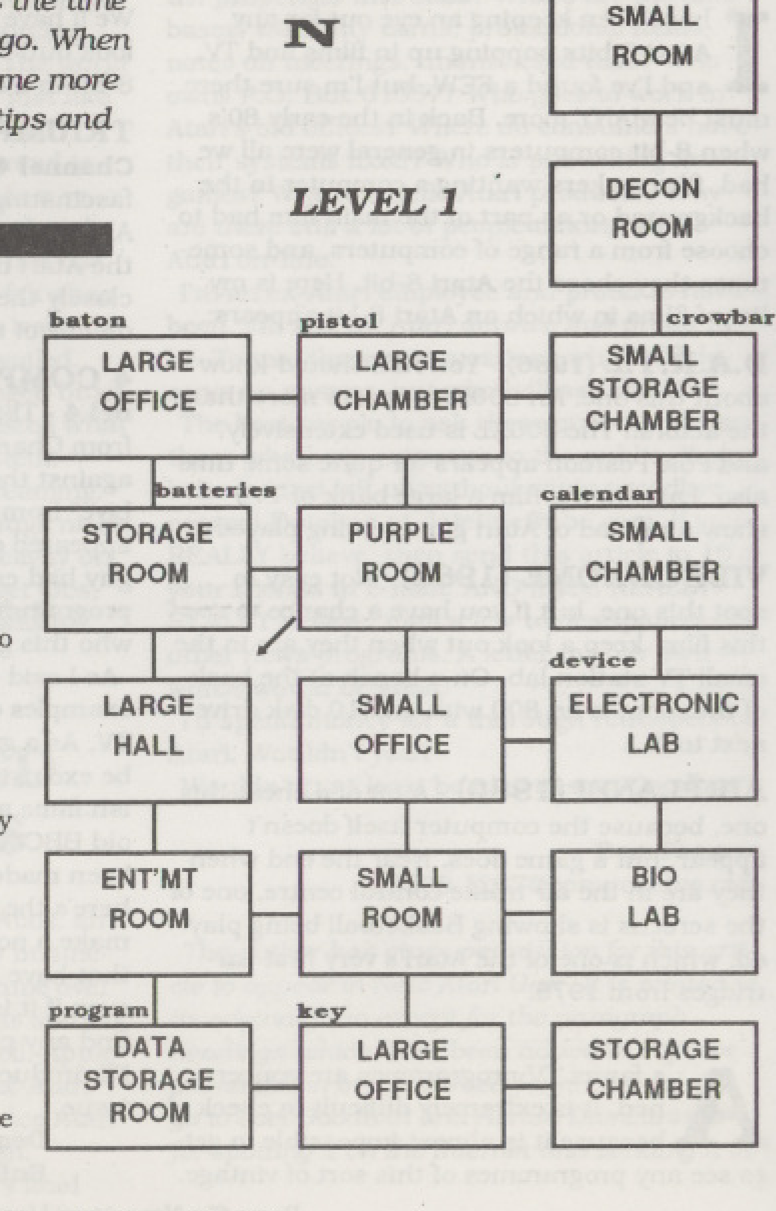
OPERATION SABOTAGE

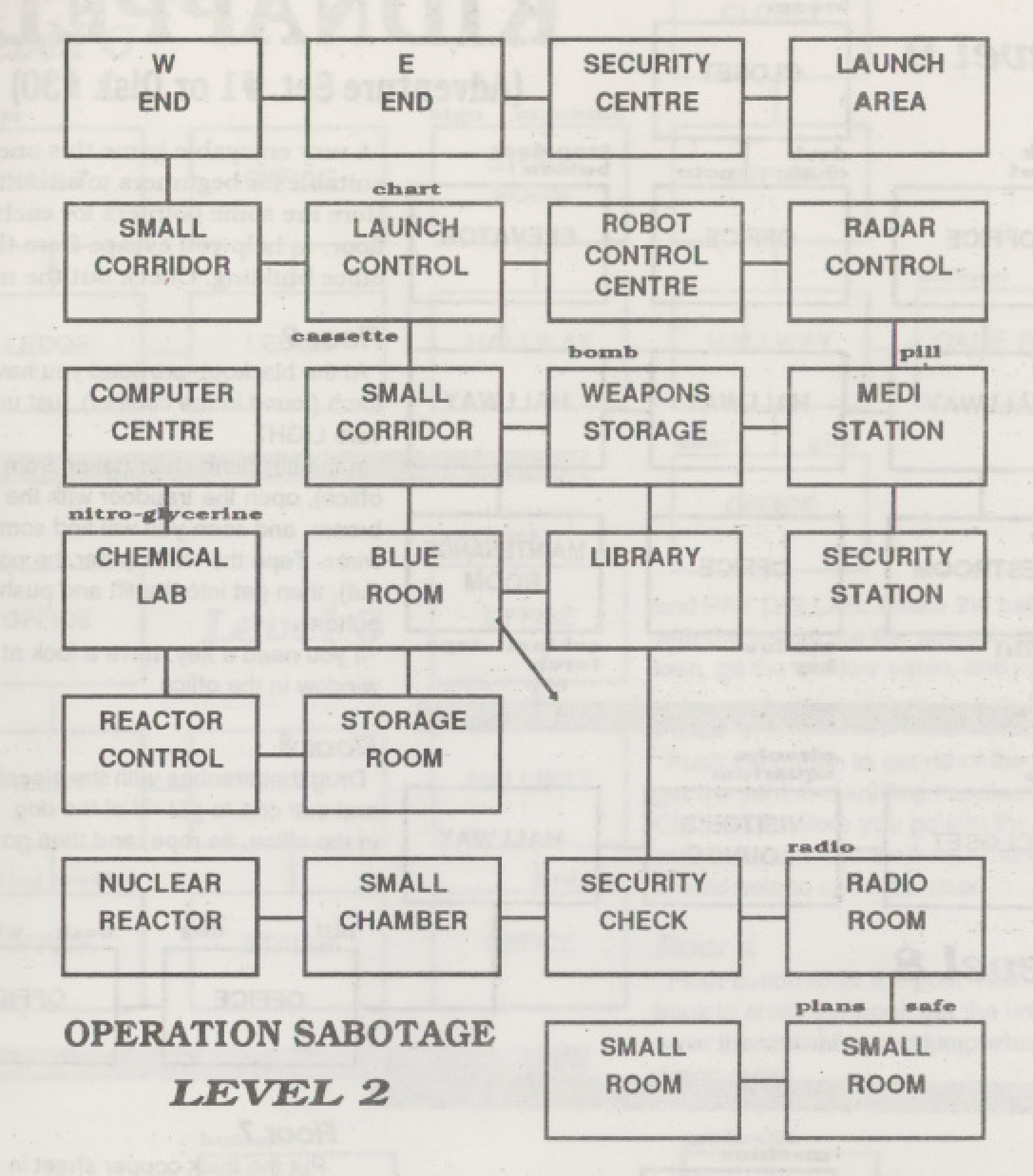
(Adventure Set #1 or disk #23)

Here are some hints for playing this PD adventure together with a map to find your way around.

There are a few ways to finish this game - you can fail, you can escape from the spaceship with or without the secret plans, and you can do any of the previous and blow the spaceship up. The following hints should help you escape with maximum points:

- DO NOT press the red button in the Bio Lab - it will release an alien monster.
- Shoot the control computer in the robot control centre - it will stop the patrol attacks on you. Don't shoot the computer in the nuclear reactor - you will destroy the base, but you won't escape.
- Open the large desk in the office to get the electronic control baton - it can be used to open the safe, where you will find the secret plans.
- The silver pill will increase your hit points.
- Open the desk in launch control to get the launch system cassette - you will need it to open the launchgate when you need to





- The easiest and safest way to destroy the base is to insert the computer destruct program (left helpfully in the data storage room) in the computer centre.
- To move between levels, press the blue button in the purple room, and the red button in the blue room.
- Use the crowbar to open the cabinet in the large chamber to get a laser pistol.

MORE TIPSTER ☞

KIDNAPPED

(Adventure Set. #1 or Disk #30)

A very enjoyable game this one, very suitable for beginners to adventures. Here are some pointers for each floor, to help you escape from the office building. Check out the maps!

Floor 9

At the blackout, provided you have the torch (found in the cabinet), just use the verb LIGHT.

In the lift, climb chair (taken from the office), open the trapdoor with the long broom, and soon you will find some wires. Tape the wires (after the power-cut), then get into the lift and push the button.

If you need a key, have a look at the window in the office.

Floor 8

Drug the piranhas with the sleeping pill, and use one to get rid of the dog. When in the office, tie rope, and then go rope.

Floor 7

Put the thick copper sheet in the key making machine - this should help you open the door. Glue step before you go stairs, however.

Floor 6

Get the gun and go to the ledge. Move along to the next office. Scare the kidnapper with the gun, and take the dollar. Go to the string machine and PAY DOLLAR. Inflate the balloon with the helium, tie the string to the balloon, go the window again, and jump.

Floor 5

Push the button to get rid of the fire, but get the yarn and knitting needles to KNIT CLOTHES before you go into the office with the nice office workers. The key should help to open the door.

Floor 4

Push button to fill the pool, read the book to cross the pool, get the umbrella, open the umbrella, and jump when in the dining room.

Level 9

broom
CLOSET
clock
TV set
OFFICE
desk
chair
note
OFFICE
trap door
button
ELEVATOR
HALLWAY
HALLWAY
HALLWAY
RESTROOM
graffiti
OFFICE
window
key
MAINTENANCE ROOM
cabinet
torch
tape

Level 8

rope
CLOSET
piranha
aquarium
VISITOR'S LOUNGE
HALLWAY
pill
dog
OFFICE
desk
window
OFFICE

Level 7

machine
OFFICE
superglue
wooden step
TOOL CRIB
HALLWAY
locked door
HALLWAY
STAIRWAY
HALLWAY
OFFICE
copper sheet
STORAGE ROOM

Level 6

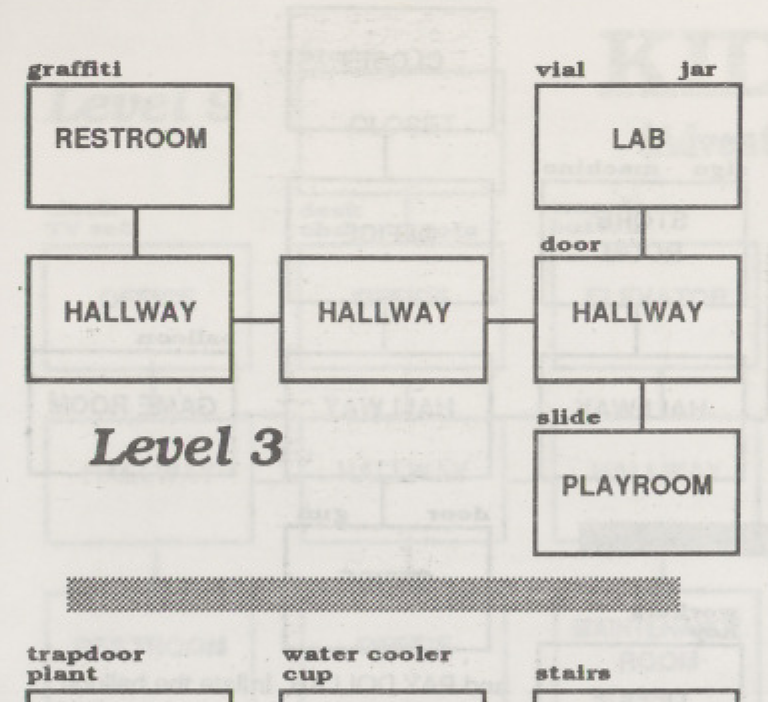
dollar
VAULT
OFFICE
sign
machine
STORE ROOM
helium
CLOSET
OFFICE
LEDGE
LEDGE
HALLWAY
HALLWAY
balloon
GAME ROOM
door
gun
OFFICE

Level 5

yarn
OFFICE
workers
key
OFFICE
HALLWAY
HALLWAY
fire
HALLWAY
knitting needles
OFFICE
STAIRS
button
OFFICE

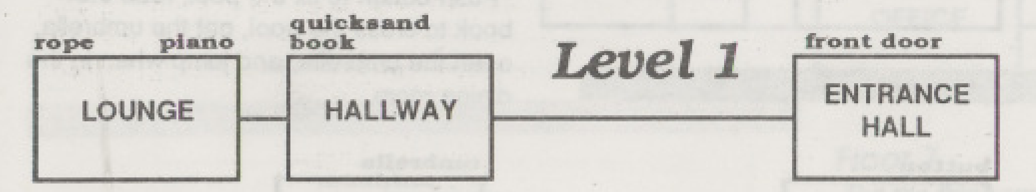
Level 4

button
OFFICE
HALLWAY
pool
SWIM ROOM
book
LIBRARY
umbrella
LAUNDRY
SWIM ROOM
window
DINING ROOM



trapdoor plant — LOUNGE
water cooler cup — OFFICE
stairs — STAIRCASE
CRAWLWAY
CRAWLWAY
flute rope

Level 2



Floor 3

Drink the fluid to open the door. Drink the solution, then climb the slide, otherwise you won't fit down the hole.

Floor 2

GET the PAPER cup, then GET WATER and POUR WATER on the plant - that should help you get through the trapdoor. Play the flute in the crawlway, then GO ROPE.

Floor 1

GET KEY from the piano, read the book, tie the rope in the hallway, throw the rope, and then GO ROPE. All you have to do then is open the door.

This is a very 'cute' adventure, and very logical - highly recommended for those starting out in adventures.

HELP!

Finally a couple of questions from John Hull up on Merseyside. Firstly he asks 'In **MERCENARY**, at the end of the game it says "Always Save Out Any Winning (ESCAPE) Status as this will give you beneficial entry to MERCENARY II". That's what it says on my game, or should it say Second City?' Well, John, the old Tipster seems to remember that there was originally going to be a Mercenary II (at the time the original was written) but it took a long, long time to appear and during that time the author decided to change the name to Second City. It's the same game!

John also wants help with **FLIGHT SIMULATOR II**. He has the disk and two Scenery disks but no manual and he can't figure out how to play. I doubt if we can solve the problem with a few hints and tips on these pages but if anyone has a spare manual they could send it direct to John Hull at 43, Forest Road, Sutton Manor, St. Helens, Merseyside WA9 4AZ.

That's all for this column, folks. ***DON'T FORGET*** *- we still need contributions for future columns so please, please write something down and send it to:*

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STAFFORD
ST16 1DR

Hardware PROJECTS

RS232 REVISITED

John Foskett adds more information to help those who may not be so experienced

As an experienced constructor of electronic projects, I am afraid to say that I was not impressed by the article by Edmund Blake describing how to build an RS232 interface in issue 81 of New Atari User. I was even less impressed with the circuit diagram (if that's what it's supposed to be) on the Ark Comms disk DS19, the diagram is about the most indecipherable load of clap trap I'd ever come across, but I must congratulate Edmund for unravelling the Rubic Cube of circuit diagrams. Because of Edmund's obvious lack of electronic experience, the article left a lot to be desired and hopefully the following information will go some way towards helping the lesser experienced constructor successfully complete this project.

DAMAGE

Damage most certainly CAN be done to your computer despite what the article states. We are all human beings and we all make mistakes. It may only take ONE mistake, a wrong connection, a wrongly positioned component and that's it, damage done. Check and double check is the motto, even for the experienced.

CUTTING THE TRACKS

You should NEVER use a knife to cut the copper tracks of Veroboard as the article states, that is positively dangerous, the blade could easily slip. There is a special tool available for this purpose from Maplin, a "Spot Face Cutter" code FL25C. Alternatively a twist drill bit of about 4mm could be used by hand to effectively countersink the appropriate holes on the copper side of the board and therefore cutting the tracks.

CONNECTING WIRE

The jumper connections on Veroboard should be made with an insulated single strand 1/0.6 wire which is available from Maplin and is referred to as "Bell Wire". The wire is available in various colours and is supplied in 10m packs or 100m reels. For this project the colour of the wire is unimportant, but I've chosen white (no particular reason) for which the Maplin codes are, 10m pack BL94C and 100m reel PA62S. If you wish to use a different colour other than white then you may choose from black, blue, green, orange, red or yellow for which the Maplin codes will obviously be different. Note that you only need a short length of wire for this project so an off-cut of telephone cable could be stripped and the individual wires used. You often find odd bits of wire laying around after telephone engineers have worked on the road side connection boxes so why buy when you can scavenge?

ELECTROLYTIC CAPACITORS

Note that the 22uF axial electrolytic capacitors (Maplin code FB30H) are rated at 35V (35 Volts) and not 25V as stated on the original circuit diagram. Note also that these electrolytic capacitors are polarised and must be connected the right way round and note that it is the NEGATIVE connection that is marked with a minus sign which may confuse an inexperienced constructor who may be looking for a plus sign.

If you wish, the 10uF capacitor (Maplin code FB22Y) on the original circuit diagram may be replaced with another 22uF capacitor. This capacitor is being used to decouple the supply line and its actual value is less important. This would enable you to use five 22uF capacitors instead of four 22uF and one 10uF which would mean less chance of error during construction by picking up and using the wrong one. Rationalising component values in this way is normal practice in industry in order to reduce production errors, etc.

INTEGRATED CIRCUITS

Note that the MAX232 IC is referred to in the Maplin catalogue as MAX232CPE which may confuse an inexperienced constructor. The main part of this code is of course MAX232, the CPE part of the code refers to packaging codes etc.

When inserting the MAX232 IC into its socket and the relay into its socket, be careful not to bend the pins since they will be weakened when straightened and could easily break off altogether. Also if a pin or several pins get bent underneath the component body, then the fault may not be obvious when the unit fails to work. When handling ICs, it is good practice NOT to touch the pins with your fingers (or any other bodily part for that matter) since static electricity generated by your body can damage them. This is particularly important when handling CMOS ICs and note that the MAX232 uses CMOS technology. If necessary, to avoid the possibility of damage, there is a special IC insertion tool available from Maplin, code FR25C. And finally always insert ICs into their sockets last of all, after all the wiring has been completed and checked and do make sure that the ICs are fitted the right way round even if the sockets are not.

SOLDERING

The article explains the principle of soldering quite well but I would advise the inexperienced constructor to practice first with an off-cut of veroboard. Do not overheat components by taking too long when soldering because the heat can do damage. Prolonged heat can damage the Veroboard by forcing the copper tracks to lift off and break away. The secret of good soldering is to make a joint quickly with a hot iron and using a minimal amount of solder. The inexperienced constructor tends to use far too much solder which on Veroboard can easily result in a blob of solder covering several tracks. Once adjacent tracks get shorted by a blob of solder, it can be very difficult to remove so take care and practice first.

When soldering the flexible wires from the I/O cable to the Veroboard, strip about 3-4mm of insulation from the end of the wires, twist the conductors and tin them as described in the article. Pass the tinned conductors through the appropriate holes from the top side of the Veroboard and solder to the tracks underneath.

A good tip when soldering flexible wire to Veroboard is to pass the individual wires (insulation as well) through an adjacent hole before soldering the wire into position. It is important to pass the wires through adjacent holes in the same track to which the wire is to be soldered or in an unused track to prevent the possibility of short circuits. This provides good mechanical strength for the wires and prevents any strain from being applied to the soldered joints should the wires accidentally get pulled. To clarify the principle, it could be seen as weaving the wires through the holes.

BITS AND BOBS

The original diagram shows two 3K resistors and references to DTR and DSR (incorrectly stated as DSRS) which may be ignored since they are not required for this project. Incidentally DTR and DSR refer to the right hand connections of the resistors (mvmv on the diagram) which has been omitted. The diagram also shows optional connections to pins 8 (CTS TTL) and 9 (CTS 232) of the MAX232, these may also be ignored.

THE CIRCUIT

Regarding the circuit of the interface itself, there is no need to use a relay to isolate the interface from other equipment (such as disk drives), all you really need is a diode (a 1N4148 will suffice) in series with pin 12 of the MAX232 which is the output of the data receiver. The object of the diode (and of coarse the relay) is to prevent data from being fed into the data receivers output terminal because basically, you cannot drive an output! Why use an expensive double pole relay costing about £5 to isolate a single line when you could use a cheaper single pole relay, but then why use a relay at all when a diode will do which will only cost a few pennies? ●

COMPUTER INTELLIGENCE

Ann O'Driscoll continues her exploration into the thinking power of computers with an exploration of language programs

Way back in the early days of computing, British computer scientist Alan Turing proposed a test designed to see if computers were intelligent. In the test, a person would sit in a room and type questions into a computer terminal. As answers to the questions appeared on his screen, the questioner would try to guess whether they were typed by another human or generated by a computer. If the person could not work out whether he or she was talking to a machine or a computer then we would have to say that the computer was "intelligent". As it turned out, computers weren't able to pass the Turing Test, but as time went on they got better and better, particularly if the range of discussion subjects was limited at the outset.

This article looks at some programs involved in getting computers to understand ordinary everyday words typed in at the keyboard.

TRANSLATION PROGRAMS

Work on language understanding by computers began as far back as the 1950s, when computers first began to work more or less reliably. One famous cold war project involved creating a program that could translate scientific papers from Russian to English and English to Russian. The idea was straightforward enough - a parsing program would analyse sentences and identify each word according to whether it was a noun, a verb, and so on; the word would then be looked up in a translation dictionary and substituted. However, scientists finally abandoned the project after spending 15 years and millions of dollars on research. It seems that the machine translators couldn't compete with people in terms of accuracy - on average, only about 80% of the text was processed correctly!

TALKING TO THE COMPUTER

The problem with the machine translation program was that it was written at a time when knowledge about many aspects of language was in its infancy. For instance, it wasn't until the 1960s that serious consideration was given to sentence meaning as opposed to word meaning in the analysis of language. It is obvious to us now of course that the meaning of a sentence is more than the sum of the meaning of its words - for instance, a "Venetian blind" is not the same as a "blind Venetian".

As time went on, a few programs began to emerge which acknowledged that there was more to language than just a big vocabulary. For instance, a few question-answering systems in the 1960s recognised that you'd have to put your questions in some sort of context if you expected the computer to understand them.

One early attempt along these lines was an American program called Baseball, developed at MIT, which could search its database to answer questions like "where did each team play in July?". The program worked because words like "play" and "team" had only one meaning, while words like "each" and "in" were ignored. Another program called Student solved maths problems input by the user by working along the same principles.

THE COMPUTER ANSWERS BACK

The next logical step was to get the computer to appear to talk back by means of the screen display. In the mid 1960s, Joseph Weizenbaum created a famous program called Eliza which seemed to do just that. The program had a language analyser and a script. Different scripts would allow Eliza to play different conversational roles. By far the most well known script was one in which Eliza played the role of a psychoanalyst. Eliza was programmed to understand key words (like mother, father), it could identify categories for certain words and repeat some of the "patient's" words in its responses. It could also repeat sentences from earlier in the conversation, and use stock phrases like "Can you say that again?". While all of these tricks gave the impression of understanding, Eliza couldn't communicate in any real sense.

A huge number of language programs similar to Eliza were subsequently produced. Like Eliza, these could all produce grammatically correct text without really understanding it. One of the most famous was a program called Racter - the first computer ever to write a book! The title of the book - The Policeman's Beard is Half Constructed - gives us a strong hint that the content is pure nonsense, even if the word order is faultless!

CONVERSATION WITH COMMUNICATION

One attempt to get computers to really communicate was a system begun in the early

1970s by a person called Terry Winograd. Called Shrdlu, this is in a different league altogether to Eliza and company, although probably not as much fun for the casual computer user who wants his or her computer to "talk back". Shrdlu's set up consisted of a flat surface (the "table"), a box and a number of blocks of varying shapes, sizes and colours. An imaginary robot arm could pick up a block and move it to another position, while a graphics display would show the current state of the blocks on the screen. The "robot" could respond to instructions (e.g. "Pick up the red block"), answer questions about the blocks or about its past actions. The program could also be told simple facts which were added to its store of knowledge, and it had a whole bank of information about rules for the blocks (for instance, a pyramid could be put on a cube, but not vice versa). Shrdlu was important from a language understanding point of view because it could cope with words like "this", "that" or "it" and it could respond to a wide range of requests. It was, of course, limited to its own little mini world of coloured blocks.

WHAT ABOUT THE ATARI?

Of course, anyone who has ever played ZORK or any of brilliant adventure games made by people like Level 9 will realise that the Atari can be programmed to accept complex sentence structures and "understand" a huge range of keyboard input on certain topics. There's even a very simple "conversational computer" program called ANALYST on one of the early Page 6 Public Domain disks (number 10). While this confines user input to a small number of keywords and gives predetermined responses to the questions, it does show how the Atari can be used to simulate conversation. Another program worth looking at, on the same disk, is called MAD-LIB. This asks you to input a number of nouns, adjectives, and so on and builds up stories using the words you key in. This idea can easily be used in conversation programs to get the computer to appear to know what you're talking about. Producing random strings of grammatically correct sentences can also be done easily using DATA statements. Just get the Atari to read nouns, verbs, prepositions and so on according to some random counter and then string them all together in a sentence. A typing tutor program called "Flexible Fingers" which was published several years ago in Page 6 (issue 26 of the magazine) shows this technique in action.

CONCLUSION

It seems then, that when it comes to language understanding, we can use a number of simple tricks to get the Atari to seem intelligent - the next article expands this idea further with a simple program to get the Atari to appear to learn as it's going along!

In the meantime, anyone who finds this subject interesting might like to check out a book called Computer Power and Human Reason (1976, W.H. Freeman & Co.). This was written by Joseph Weizenbaum, the author of the ELIZA program. Apparently many people took Eliza seriously and believed that they were actually talking to an analyst. Weizenbaum was nonplussed by this and wrote the book to show exactly what the program was all about and also to make the case that some things should not be done by computers at all! ●

The CLASSIC PD ZONE

by
Austin Hillman

Welcome to The Classic PD Zone Autumn fair. I'm sorry about the weather, I'm sure it will stop raining soon. In the meantime let us dip into the bran tub and see what we can find.

DO IT YOURSELF

HARDWARE UPGRADES (DS55) is a double sided collection of articles and programs that was put together by the CHAOS Bulletin Board in 1986. It will assist the more technically minded of you to upgrade the memory of your 800, XL or XE computer.

Side one of the disk contains files which, among other things allows you to create a 130XE compatible 256K 800XL, includes information on how to use and configure your system after the modification is installed, gives you the Assembler code for the construction of a single double density ramdisk or two single density ramdisks and the code for constructing a single density ramdisk which is useful for running software designed to use the 128k.in the 130XE. There are a number of object code files ready to use which give you the following options: a double-density ramdisk numbered as "D3:", two ramdisks, both single density, numbered "D3:" and "D4:", one single density ramdisk numbered "D3:" that stays out of the way of much 130XE software, one single density ramdisk numbered "D4:" that stays out of the way of much 130XE software, a double density 503 sector ramdisk called "D4:" that will work with DOSXL and BASIC XE. You can also set up a 1530 sector ramdisk with SpartaDOS or write ramdisk drivers set up as you want from menu choices.

To get you started there is a quick basic routine to check out bank selection. Other programs load your ramdisks with files copied off prepared disks automatically and set up DOS 2.5 for ramdisk use of the extended memory.

Apart from the first upgrade mentioned above there are details of several other options. Richard Andrews gives instructions on how to upgrade a 130XE to 512K whilst Scott Peterson suggests a much simpler upgrade to 320K. If that is not enough memory for you he goes on to explain how to upgrade to 576K or even 1088k!

Side two of this disk is aimed at owners of the original 800 computer. It contains full instructions by David Byrd, aided by five picture files, for the construction of a 288k machine. Control of the expanded memory is achieved with the Extended Memory Disk Emulator Operating System, created by H V Stacey.

Other programs modify DOS 2.5 IO and ramdisk functions. There is a patch program for MyDOS, modifications for Axlon compatible software, a ramtester, and a pair of copy programs for disk duplication. No text reader or

picture display utility is provided with this disk.

As usual there is a health warning for those sual there is a health warning for those tempted to follow these articles. IF IN DOUBT, DON'T DO IT, LEAVE IT TO THE EXPERTS. I am not an expert, and have not attempted any of these modifications, so evaluating this disk is difficult, I'll have to leave it up to you to decide if it is useful or not.

THE WIZARD OF AUS

SUPERDOS v5.0 (#169) by Australian Paul Nicholls is yet another disk operating system, but it is one that lives up to its name, it really is a super DOS. It works with all classic Atari computers from the 400 onward, and can make good use of extra memory and upgraded disk drives.

It supports single, enhanced, double density and double sided double density (XF551) formats. It will copy files between different density disks with only one drive. It automatically sets up the largest RAMdisk possible. It supports 130XE compatible 128K, 256K, and 320K RAMdisks and Axlon compatible 128K and 256K RAMdisks. It will automatically copy files with a .RAM extender to the RAMdisk or you may hold [Esc] while booting to reserve the 130XE banks for programs.

It has short DOS.SYS (38 sectors) and SDUP.SYS (40 sectors) files to leave maximum space for you. It can restore files which have been deleted or left open. The directory can display all deleted and open files. An automatic trace and patch facility can recover damaged files. It has a single keystroke menu, no returns are needed. It has clear prompts and a concise double column display that lists 40 files at once. A full screen scroll won't wipe out a filename you were about to use as it does in DOS 2.5.

You can use upper and lower case, inverse and numbers in filenames. You can adjust the key delay and repeat rate for the XL/XE keyboard. Write with or without verify, toggled direct from the menu. It has a Binary Save that even saves cartridges. High speed transfers are possible with SUPERMAX, US Doubler, and XF551 drives. Skewed sectors are selectable for even higher speed. You may format disks in any density. Write DOS.SYS and SDUP.SYS or DOS.SYS only. Copy all .SYS files except DOS.SYS using wild cards. The true sector copier copies boot disks and skips empty sectors.

You can format a destination disk during disk copy. Copy sectors and display bad sector numbers. Copy to and from cassette using long or short IRG. Display the configuration block settings of double density drives. Enter sector numbers and addresses in hexadecimal or decimal. Handle up to eight double density files open concurrently. Handle up to four double density drives plus a RAMdisk. Change file buffers and drive buffers without using POKEs. Copy from DOS 3.0 files using one or two drives and wild cards.

Also included is SUPERBIN, a compact boot program which displays a menu of binary files and runs them. SUPERBAS, a compact AUTORUN.SYS program which displays a menu of BASIC files and runs them.

The SUPERDOS disk contains seven files: DOS.SYS, SDUP.SYS, AUX.SYS, SBAS.SYS, DOC.SYS, AUTORUN.SYS, DOCv5.SYS.

DOS.SYS and SDUP.SYS is the file management system, and is similar in appearance and operation to Atari DOS 2.5 for ease of use.

AUX.SYS when loaded gives you another menu and access to the extra functions that are used less often.

SBAS.SYS is a special program for running BASIC programs from a menu when DOS is not required.

DOC.SYS is the comprehensive instruction manual which runs to fifteen pages. AUTORUN.SYS is the routine which prints out the manual. DOCv5.SYS is a short description of the changes and new features of the v5.0 upgrade and also contains some hints on using SUPERDOS with an XF551, a RAMdisk, or a 400/800.

The loading process differs from that of DOS 2.5 as follows. After 5 sectors have loaded, a test is made for a SUPERMAX, US Doubler, or XF551 drive. If one is found, the loading speed is increased. If there is 64K (or more) of memory, or if SDUP is set to "resident", SDUP.SYS is loaded. If RAMDISK ENABLE is set ON, the largest available RAMdisk is initialized. If [Esc] is being held down, the four 130XE memory banks are reserved for your program to use and a smaller RAMdisk is initialized. If a RAMdisk is present, all files on drive one with the extender .RAM are copied to the RAMdisk. The progress of this operation is reported on the screen, as are errors. You may abort this operation by pressing [Break]. AUTORUN.SYS (if present) is loaded and run.

The SUPERDOS menu can also be called from a program. The most common example of this is typing "DOS" while in BASIC. The following then occurs. A check is made to see if SDUP.SYS is intact under the OS or at the bottom of memory. If it is found under the OS, it is swapped with the data at the bottom of memory and the SDUP.SYS menu appears almost instantly. If it is found at the bottom of memory, the SDUP.SYS menu appears instantly. If it is not found in RAM, DOS searches for it on drive one. If found, it is loaded. This may destroy part of the program area. If it is not found, you are returned to the calling program.

At the top of the screen is the disk drive Status line. It shows the numbers and densities of the available disk drives. 1 through 4 are disk drives. 5+ is the RAMdisk. Any reference to D5: D6: D7: or D8: is diverted to the RAMdisk. This provides compatibility with a large variety of programs.

The densities are indicated by initials, Single, Enhanced, Double, 2 sided/Double density, or Xtended density. If no density is indicated, the drive is not available. Note that the densities reflect the format of the disk currently installed, not the capability of the drive. The density automatically changes as different disks are accessed.

The screen border colour indicates the type of operation about to be performed. Green means read, red means write, purple means format, yellow means respond to prompt.

Well, that should give you some idea of the capabilities of this great program. Why not try it, you might like it, I know I do.

GONE FISHING

SCANDISK (#287) is a collection of simple tape and disk utilities, together with a few extra programs which were intended to demonstrate the capabilities of the Programmers Utility Pack and Sound-FX Designer, which are not on this disk.

The programs are installed on a Menuloader menu program. This is a neat self replicating menu system for up to ten binary files that do not need BASIC to run. It has just three functions, make a new menu, delete the last entry or load a new entry from a boot disk.

The copiers available from this menu are varied and include a tape to tape copier which handles one or two load files with short or long record gaps and a single stage tape to disk transfer utility. A single stage disk to tape transfer is also offered. The disk utility program has a sub-menu that offers a disk mapper, a disk formatter, a sector copier, and a bad sector creator. There is also a disk sector dumper and editor which comes with some brief documentation. Finally there is a BASIC cassette autoboot creator which creates an autoboot loader for BASIC programs on tape.

Apart from the utilities you also get some demos and a couple of games. The Merry Xmas demo features a tree festooned with twinkling fairy lights, falling snow, and a scrolling seasonal greeting, but strangely has no music as you might expect. Scorch is a non scoring, but otherwise working, demo of a vertically scrolling shoot-em-up. You are the flying head facing two deadly alien craft. It's a good demo, I wonder if the game was ever finished?

The main attraction on this disk has to be Tight Lines, a fully functional game that is a bit different from the norm featuring a fly fishing tournament.

You are on the river bank watching the fish cause ripples on the surface of the water. You must cast your line at the ripples, by pressing the joystick forward, in order to hook a fish. When you catch one you must quickly reel it in, by moving the joystick back and forth. If your line is crossed by the passing swans or the happyface hazard you will lose your hook, and your fish if you have caught one. Another hazard are the pike lurking in the opposite bank waiting to grab your fish from your line, one is big and slow, the other small and fast. You have five hooks with which to catch the highest poundage. The big fish lie on the far bank of course. The only thing I am not so keen on is the music, which can thankfully be silenced by the space bar.

Exterminator is another game and is the final entry on the menu, but it will not run, I suspect the disk was full up.

RATINGS

HARDWARE UPGRADES (DS55)	??%
SUPERDOS v5.0 (#169)	90%
SCANDISK (#287)	60%

I'm sorry about the rain, I hope it did not spoil your enjoyment too much, and that you will be back again next issue. ●

THE ACCESSORY SHOP

NEW PD LIBRARY ADDITIONS

This issue we have a veritable bounty of new PD disks for your enjoyment, the best selection we have had for some time. Enjoy some excellent programs that prove your Atari Classic is very much alive.

DS#133 - JOYRIDE

Another superb demo from Poland, the like of which we haven't seen for a while. If you have bought demos before, you know what to expect in style but some of the effects in this one will blow your mind. The main loading screen shows a set of floating pixels like a starfield above the the title and this recurs each time a demo loads. First up is a wobbly scroll (everything is in English) followed by a 'Plot Tunnel' which has never been done on the Atari Classic before. An unimpressive single line scroll follows but then the background comes alive with a a digital juggler taken from the ST (or Amiga) and the scroll continues, a great combination. A 'Plot Landscape' is next which looks like an animated version of one of those gadgets where you can push your face against pins to leave a likeness. Three spinning globes with ever changing patterns complete side 1.

Side 2 introduces members of the programming team with a moving starfield on the left and digitised photos on the right which morph into each other. Personal details of each of the three programmers appear over the starfield. After this there follows a huge photo (very clear) of the three of them which is over twice the size of the screen so bounces and scrolls around so you can see it all. What many Atarians have said is the best effect so far on the Atari is the Oil Plasma which is like a series of colourwash effects in the centre of the screen which can be altered using console keys. Mighty impressive! Next, flame licks the bottom of the screen before going on to a set of digitised photos of girls that are subject to all sorts of trick effects. A set of spiralling dots now heralds an astonishing set of 3D moving squares which seem to go right back into the screen - a bit like those Magic Eye pictures. Several more effects follow before the closing greetings and credits. This last is very impressive with a series of 'film stills' of all the demos you have seen.

This is only a couple of years old and there may not be many more of these to come. Give it a view, it really is a cracker.

DS#134 - BOBTERM

Here is one of the best comms programs available for the Atari Classic. If you have kept up to date with NAU in recent years you will know that Gordon Hooper in Canada successfully used this program for a couple of years to send E-mail using his Atari. If you want to join the Internet revolution (subject to limitations of course!) or just communicate with other computers, this could be the program you need. A very easy to use program but extensive documentation is included on Side 2 to tell everything you need to know.

DS#135 - RIF SPARTADOS UTILITIES 1.1

A new set of SpartaDOS utilities sent in by reader Jonathon Halliday. Around a dozen new utilities include an SDX Batch file invoker, Binary file desegmenter, SpartaDOS text editor, Directory finder, OS cursor flash utility, Conditional batch file statement, a Print utility, File mover, Quick Directory changer, XKEY Keyboard

THE ACCESSORY SHOP

macro editor and a keyboard macro and type-ahead buffer system. All of these programs have associated documentation files to explain how to use them. There is sure to be something of use here to regular SpartaDOS users.

DS#136 - ATARI CAD

A brand new computer aided design program from John Foskett which, judging from the printed results looks to be a real gem! Although primarily designed for drawing circuit diagrams, the Atari CAD program may be used to draw just about anything at all. The Atari CAD program contains a wide range of electronic symbols, a cross between the good old favourites, the British Standard BS3939 recommended symbols and those which look good on the screen and when printed out. To allow for the maximum drawing space, a mode 8 screen has been used with single line resolution. An information screen is available at most times when using the program which gives brief details of all the commands available and is accessed by pressing the <HELP> key.

Most of the drawing commands are available as a combination of joystick and keyboard controls and there are numerous preset electronic symbols to help you on your way. To help you along there are eight drawing files included which show a couple of single transistor receivers, a coil for single valve receiver, an XL/XE replacement power supply, a multivibrator twin LED flasher, a 4 way sequential lamp flasher, a sound triggered flash unit and a square wave generator. Also included are 15 master blank drawing files each with a special feature around which wiring layout drawings may be produced. Examples are included to show how these may be used.

The program is too comprehensive to explain more fully here but full documentation for its use is included on the disk. If you have ever designed, or needed, a circuit diagram then this program is a must. It can also be used for many similar design and layout applications due the great deal of care and thought that has gone into its design. This is probably the best CAD program ever written for the Atari Classic.

FUTURA

With the final issue of Futura being recently released, Stuart Murray has given permission for all issues of Futura to be included in the Page 6 Library. The first 6 issues are already available and the remainder are listed below. All Futura issues are £1.50 except those noted which are double disk issues.

DS#72 - FUTURA 1
DS#73 - FUTURA 2
DS#78 - FUTURA 3
DS#79 - FUTURA 4
DS#87 - FUTURA 5
DS#89 - FUTURA 6
DS#137 - FUTURA 7
DS#138 - FUTURA 8
DS#139 - FUTURA 9
DS#140 - FUTURA 10
DS#141 - FUTURA 11
DS#142 - FUTURA 12
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GUN LAW ✓	PANTHER ✓	TAIL OF BETA LYRAE ✓
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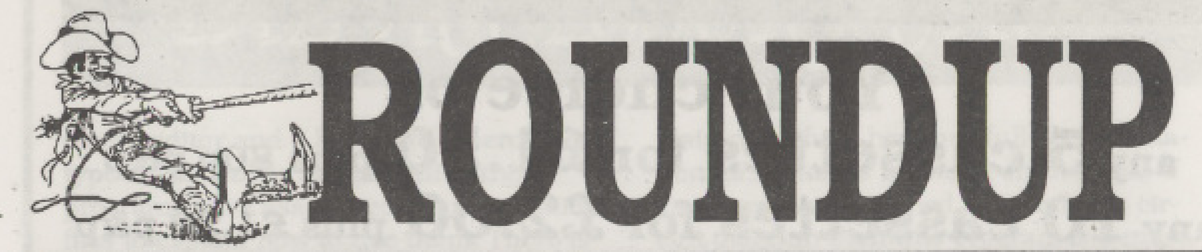
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ST PUBLIC DOMAIN ROUNDUP



For the next few issues the ST PD reins have been passed to yours truly. I was supposed to start last issue but owing to commitments and unfortunate timing I was unable to do so.

This issue I have the privilege of reviewing three titles from the vaults of Page 6. On the menu today, (cue Lloyd Grossman dialogue):

First we start with an early 1990s megademo by coders PHALANX called the Overdrive megademo. Swiftly following this delicacy is a generous serving of science fiction with Sci-fi Show. Finally to top it off we have a fine tasting PD sample sequencer ST Noisetracker 1.5 in a rich cheese sauce. So without further ado to the red kitchen..........

❻= *score out of 10*

by Daniel Baverstock

OVERDRIVE MEGADEMO
(ST556)

Is there anything more appealing than the thought of Lloyd Grossman tied to a large boulder at the bottom of a tank infested with half starved piranha? Well, surprisingly there is, (Gasp!). A decent megademo springs to mind. Does Overdrive satisfy my gluttonous appetite? Read on...

The advantage with a megademo is that it at least guarantees you a few gems amongst all that programming. Overdrive boasts 16 demos although only 13 worked, one deciding that my STe was too grand for it, while the others presented me with blank screens. Nevertheless out of the 13 available there are some decent ones to be seen.

The majority of the demos are one screen text scrollers with additional graphics and special effects. Unfortunately the majority of them are also accompanied by music of the wobbly chip variety that is frustratingly used in place of decent sample-sequenced music found in most ST demos and software.

The disk boots through to the Amiga hand/disk intro Amiga 500 owners will be familiar with, which is then shot off the screen by a gun toting bloke on a two legged animal, (a bit like Luke Skywalker in The Empire Strikes Back).

The loading screens are an onscreen jumble of colourful text scrollers and another screen with credits for the demo currently loading. The accompanying chip music could be described as a cross between a muffled rave and police sirens.

The menu for choosing to view the 16 demos is the same idea as the excellent Unity megademo on the 8-bit - a 2-D horizontal side scrolling platform style level using some colourful space themed graphics and sprites provides an interface for demo selection. You control a small red space craft as it navigates through a level comprised of metal panels and pipe structures, gun turrets and so forth. You pilot the craft to the named demo viewing it by landing on a platform and entering a doorway or hole in the wall.

The demos available are: Biggy Sprite 2, Ugly Screen, Dragon, Beat Dis, Oh No, D.I.S (Dots in space, also seen by pressing reset), Snirkel (doesn't work on my STe), Nibblebender (same result as Snirkel demo), Sync, Overlanders, Times, Bitmap Mania, Snurkel, Fullscreen (ST only), Music Box and finally Bouncing Balls.

As mentioned, the most common element throughout the demos is the text scroller. I often wonder why this is the norm. I don't know about you but I don't particularly collect demos to read their scrolls. This is a shame really as I would like to see more graphic and music effects instead.

Biggy Sprite 2 is the first scroller infested culprit. Three identical white horizontal texts on a black background with the letters spelling VECTOR in a large blue font chasing each other around the screen, and a large PHALANX logo moving steadily up and down the screen. Well drawn graphics here with an average chip music.

Music ❺ Graphics ❻ Effects ❺
Originality ❹ Overall ❺

Ugly screen has some eerily haunting chip music with an impressive hi-res colour PHALANX logo in shades of red being manipulated to give various blurring, and wobbling effects. A green/yellow shaded horizontal text scroller at the bottom of the screen shifts its way along, while a mauve scroller twists itself around like a ribbon over a rotating VECTOR graphic. The letters of a small text bumbles its way around the screen. I liked the demo for its effects displays although the music can become a little annoying very quickly.

Music ❻ Graphics ❽ Effects ❽
Originality ❻ Overall ❽

Dragon is one of the more graphically disappointing demos with a segmented spherical dragon jumping in and out of a red and white speckled lower screen. Over the top a single colour red scroller moves Loch Ness monster style over the screen. Use of colour is very poor here and again the music is very average.

Music ❻ Graphics ❸ Effects ❸
Originality ❹ Overall ❹

Beat Dis picks the standards back up again with a catchy musical collaboration of a digi-sample like an echoing stamp and chip music playing while an image sways and flips mid screen. A one colour orange text scroller moves along the bottom.

Music ❻ Graphics ❻ Effects ❻
Originality ❺ Overall ❻

Oh No is described as a disk filler. It requires you to hold the escape button to view it. Chip music plays while three graphic equalizers pulsate over a black screen and starfield. A large scroller, a small graphic logo and letter move over and around the screen. Graphics are average and uncolourful in shades of grey.

Music ❺ Graphics ❺ Effects ❺
Originality ❹ Overall ❺

I thought ***D.I.S***, (Dots in Space), had crashed until I pressed reset and was told I'd found the magic button. The screen is a black background upon which a starfield moves head on towards you. A visually impressive twisting text scroller moves over the top of a revolving 3D bubble man, while a 3D rectangle revolves forward with the coders names and greetings at the bottom of the screen. Good effects here with dramatic chip music.

Music ❼ Graphics ❽ Effects ❽
Originality ❻ Overall ❽

Snirkel and ***Nibblebender*** both seem to display blank screens for all eternity. This may have something to do with my 4MB 1040STe. Pressing reset simply runs the D.I.S demo again.

Sync is an evaluation of a digi-sample sequencer called Audio Sculpture that kicks in after around 15-20 seconds of a blank screen. The wait isn't really rewarded since

the automatically played track appears to be partially corrupted. Still, it seem a very comprehensive sequencer with a graphic icon driven interface controlled via the mouse. I wonder if it was ever released?

Overlanders is an impressively rich demo comprising of hi-res colourful vertical text scrollers either side of the screen, a pulsating scroller below, and a variety of different 3D pixel objects from globes to triangles in mid screen. This demo is one of the better ones and the chip music isn't too bad either.
Music ❻ Graphics ❽ Effects ❽
Originality ❻ Overall ❽

Times starts off with a newspaper unravelling top to bottom in black and white. Something about the coders is detailed here. Pressing space moves to a screen with a scrolling grey panelled background and two pink spherical chains intertwining in mid screen over a bland GHOST logo graphic. There is also a small one letter text scroller top right of the screen. Don't even try to read this one. Average chip music.
Music ❻ Graphics ❻ Effects ❻
Originality ❹ Overall ❻

Bitmap Mania is a scroll readers hell, with several text scrollers moving in many directions simultaneously. A colourful array is used but avid scroll readers be warned you may lose your sight and sanity upon viewing this demo.
Music ❻ Graphics ❹ Effects ❹
Originality ❹ Overall ❺

Snurkel is the first demo with a really decent digi-sample music track, even if it is a little repetitive. Pink balls swirl toward the screen with a yellow wavy text scroller that you can control via left/right cursor and the insert and clr home keys. Another vision killer on the higher settings.
Music ❾ Graphics ❻ Effects ❺
Originality ❻ Overall ❻

Music box is quite odd. It is simply a screen of dials to which various instruments are assigned, though no samples are apparent since chip music from previous demos is used. The dials jiggle about and three animated speakers pound to the beats'. Wiggling the mouse a little seems to change the song played with the subtlety of a dodgy record player. I didn't think much of the graphics either and soon lost interest.
Music ❺ Graphics ❸ Effects ❷
Originality ❹ Overall ❹

The last demo is ***Bouncing Balls***. Initially two lines of red and blue balls cover the screen as they bounce of the screen's borders. As soon as it fills up, the demo kicks in with a 3D ball text floating mid screen over a yellow star-field, reflecting in a blue shaded lower screen to good effect. The same music as in the D.I.S demo plays.
Music ❼ Graphics ❺ Effects ❻
Originality ❺ Overall ❻

Overall the Overdrive megademo has its pros and cons, but in the end despite the numerous text scrollers and the average chip music tracks, it is worth having for the few good demos, the innovative menu interface, and digi music track.

Final Score ❻

SCI-FI SHOW
(ST193)

This PD disk is simply a collection of DEGAS format art pictures of TV science fiction shows, either hand drawn or scanned and in colour or grey scale. Most were created between 1986 and 1990.

The disk boots to a personalised desktop with a grey scale picture of what I assume to be the Enterprise from Star Trek with the curious addition of a small scanned picture of the programmer who appears to have green skin and a toupee! What's more his name is NOD!

You have two programs at your disposal. The first is called LEATHER2.TOS, which simply adds chip music to the desktop, while the Degas viewer itself is SHOWPIC2.

The options given when you run the latter allow you to view the pictures, show blocks, (I didn't get to find out what this actually did), and view the picture filenames. You can select one or more before viewing the pictures. You can also choose the drive from which the picture loads from, drives A to P. Useful if you have a hard drive with many images.

The pictures load on screen in a slide show format allowing you to control the delay before the next loads with the function keys. F3 seemed to be the right speed giving around eight seconds of viewing, while F10 seems to delay loading for a day or two! Other functions during the slide show include space to pause, help to return to the options screen, and undo to return to the desktop.

The pictures themselves cover an assortment of different TV shows, with a total of around 25 to view. Star Trek, Star Trek: The Next Generation, Thunderbirds, Dr Who, and Star Wars feature predominantly with occasional appearances from 70's shows like Blakes 7 and comic book characters like Judge Dredd.

The quality of the pictures varies dramatically. The hand drawn pictures are I have to say, appalling for an ST. The scanned images, especially the Thunderbird grey scales are probably the best of the collection. Obviously the picture format isn't that flexible since the number of colours seems very restricted, (let's just say less than 50 at times, so if you are looking for decent ST images try Photochrome). Some of the images have even been tampered with. In one picture the one and only NOD features beside Star Trek's Dr Spock!

Sci-fi show isn't really as dedicated to Science Fiction as it could have been. It is simply the creation of a rather strange programmer. Not enough Star Wars and too much hand drawn art to interest me. However, the personalised desktop and the Degas slide show program itself is probably worth the cost of the disk anyway. The background music feature is also a novelty. Die hard X-filians stay clear!

Final Score ❹

ST NOISETRACKER 1.5
(ST419)

This PD sample sequencer is for the musically inclined ST users who like to listen to samples rather than spectrum-esque bleeps. I won't go into much detail about the detailed functions of this sequencer since a) I don't understand it; and b) I haven't enough time to learn before this article's deadline.

Noisetracker is a comprehensive four track sample sequencer. A sequencer simply allows you to create your own musical arrangements using pre-sampled sounds with four samples playing at the same time.

Sample software is included in the package, which requires a hardware sampler as the input device. It supports ST-Replay, Pro-sound Designer, MV16 Cartridge hardware products both inputs and outputs and plays via YM2149. Well, that is what the on-screen credits claim. I am not sure if the last is a hardware or software product.

The disk boots to a Page 6 personalised desktop from which two programs are immediately available: Noise_15.prg and Intro.prg. The latter is a small demo of the potential of the sequencer, simply a one screen text scrolling demo with a nice 3D rotating balls display and a track created using Noisetracker playing in the background. Nice tune.

Noisetracker itself uses a clear icon driven mouse interface all on one easily accessible screen. Tunes created by Noisetracker are saved in the familiar MOD format, (abbreviation for music module). These save

AMS VIDEO

I never expected to be reviewing a video in these pages but these are different days and with so little software being released, why not?

The video in question has been produced by Dean Garraghty as a record of the AMS show in 1996 or as a sort of nostalgia trip for those who go (or used to go) along to the Bingley Hall in Stafford for the only remaining Atari extravaganza. In many ways the video reflects the concept and style of AMS, a sort of bung a few things together on the day and make the best of it. In this case bung a Camcorder in the car and start filming when you turn up. Don't expect a major production here but don't dismiss it out of hand either. If you are the nostalgic sort then you might well get a buzz out of this.

The video starts as the 'Dean Garraghty guys' turn up at The Bingley Hall and check in and then follows the setting up before the show opens. As the doors open and the crowds arrive we see shots of various Atari enthusiasts and a wander round the show. You might even find yourself a star of the show - there were certainly one or two faces I recognised! After the doors close we see the packing up and departure with another show come and gone. In total we have about 22 minutes of 'action'.

This is really a nostalgia trip and on this basis I have to admit it works. When the camera swung round to the corner we used to occupy (this was the first AMS we had missed) I certainly had pangs of nostalgia for the enjoyable shows of past years. My son also realised how much he missed these shows.

The video suffers from a lack of pre-planning and could certainly do with an over-dubbed commentary (although there is some sound) but these are easy criticisms to make and not such easy things to achieve. I suspect Dean thought at the last minute that it would be fun to record the event, and why not?

The AMS Video is available from Dean Garraghty for £4.99 including p&p. A fiver is not bad for a novel record of a little part of your passion is it? Make the cheque payable to Dean Garraghty and send it to: **Dean Garraghty, 62 Thomson Ave., Balby, Doncaster, DN4 0NU.**

Overseas readers note that this is PAL VHS and may not work on your systems. *Les Ellingham*

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both the samples and arrangement in one file, which can be quickly saved and loaded from disk, as can separate samples.

The screen displays the four track details, sample and mod file details, track position, length, a various other details which are needed when editing. Tempo, position, pattern, length, and the sample played can be finely tuned to your requirements.

You can browse the disk directory for mods and samples, edit the interface and sound preferences, record samples and play back tracks.

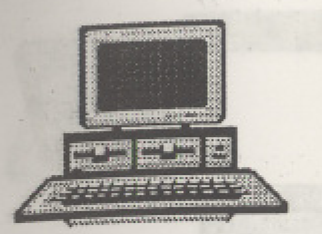
When playing tracks four multi-coloured graphic equalizers are activated. You also have the option of cutting out one or more of the tracks as they play, thus isolating each one individually for editing purposes. For a non-commercial PD program it is very accomplished.

The disk comes with an assortment of samples and four very good MOD songs including the remixed New Order sequencer favourite Blue Monday.

I found Noisetracker to be a very easy to use and fun application, though I haven't as yet tried the editing or sampling functions. A cheap beginners alternative to commercial sequencers which comes highly recommended.

Final Score ①

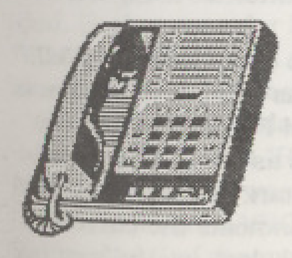
As you can see the clear favourite this time round is ST Noisetracker. Till next issue I promise to not mention Mr Grossman for fear of reprisals. Now, where did I put that boulder? ●



JOURNEY INTO CYBERSPACE

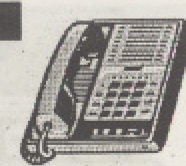
EMULATING THE ATARI

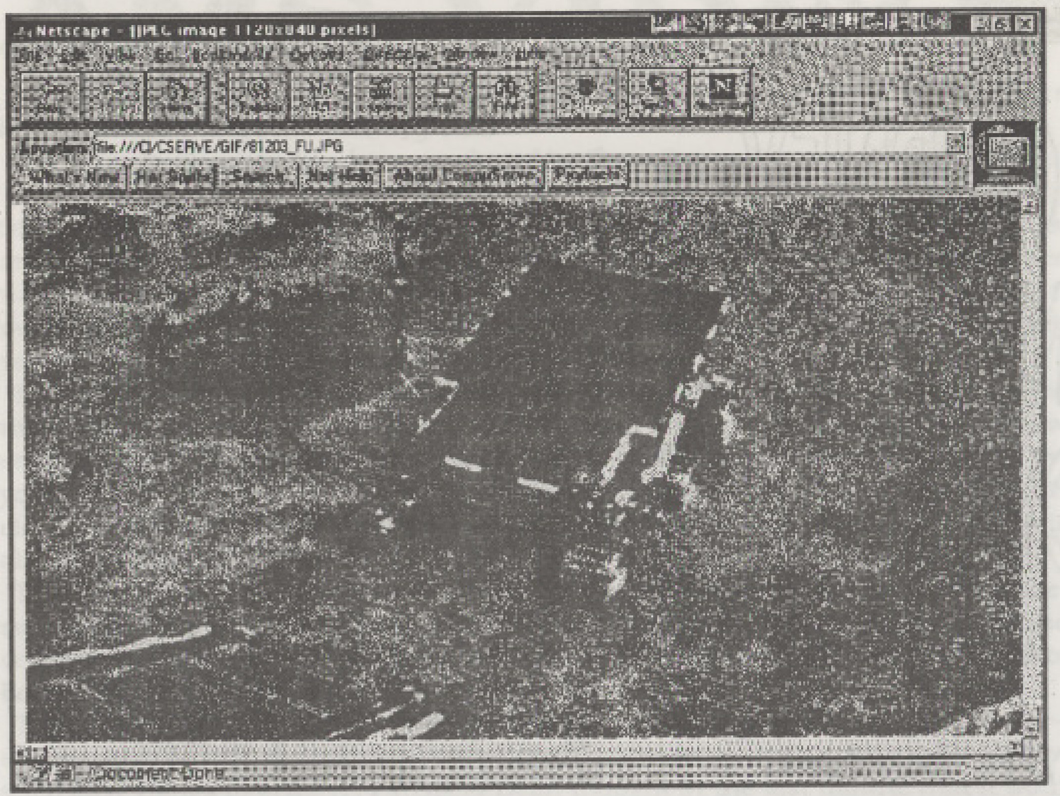
This issue John S Davison marvels at pictures from Mars while Pete Davison explores .....



I can't help but marvel at the extraordinary communications technology we now have available to us in our homes. Even since I began writing this series of articles about 18 months ago, the facilities available to Internet users have improved almost beyond recognition. This became very apparent recently when using the Internet to follow one of the most remarkable voyages of exploration ever made. I'm referring, of course, to the Mars Pathfinder mission.

A fantastic amount of material on Pathfinder has been made available on the Internet, with the best coming direct from NASA's Jet Propulsion Laboratory as you'd expect. NASA have really made the World Wide Web live up to its name, by using it to publish to the whole world the latest news about the mission as it happens. And it's not just in text form. Stunning photographs from the surface of Mars have been put on the Web almost as fast as they arrived from Sagan Memorial Station (the name now given to the landing site). In fact, I saw the first Mars pictures on my computer screen before I saw them on TV. In the first three days alone NASA's Web sites received a staggering 100 million visits from Internet users all over the world. The load was so high that NASA had copies of the data





set up on about two dozen "mirror" sites around the globe, to spread the load and reduce response time to users.

NOT JUST PICTURES

Pictures aren't the end of it either. There are live audio and video feeds across the Internet direct from NASA mission control, so you can see and hear the action as it happens. There's also a live chat channel so you can actually chat (via your keyboard) directly with members of the Mars Pathfinder team in real time. And, there are virtual reality models, panoramic pictures, and sensational stereoscopic photos (viewable using red/blue glasses) all freely available for download. In short, it's one of the finest exploitations of Internet technology I've ever seen.

Another amazing fact about the above is that owing to the bizarre marketing strategies prevalent in the PC world, most of the software needed to access all those wonderful facilities is available free of charge! The two giants of the Web browser world, Netscape Navigator/ Communicator and Microsoft Internet Explorer, are available free of charge on PC magazine cover disks, amongst many other sources. The latest whizbang audio, video, and graphical facilities are provided via new "plug-in" software features. These integrate directly into the Web browser, usually available via free download from the Internet using the Web browser itself.

So what's all this got to do with Atari? Well, to be honest, not a lot, as most of the above is only available using IBM PC based systems. However, this column is as much about the Internet as it is about Atari, so I felt I just had to include the above to indicate the current state of the art. I can only look wistfully at my old Atari ST and 130XE and think, "if only...".

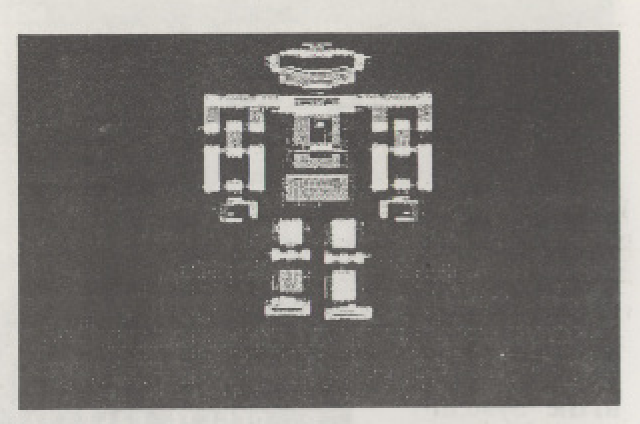


ATARI EMULATION

You may not expect it, but there is a positive link between the Atari and PC worlds. I recently received an e-mail note from Paulo Rodrigues of Portugal. He has two 130XE systems which no longer work, so decided to use an Atari emulator on his IBM PC to run his old 8-bit software. Pete, my younger son and avid fan of both Atari and PC computers, became fascinated by this idea, so decided to investigate it himself. Pete also wanted to write something for NAU, so I'll now hand over the rest of this article to him to tell you about his findings. All yours, Pete...

The Atari Classic scene may have slowed down in recent years, especially with the advent of more powerful machines such as the PC, but the popularity of Atari's original wonder-machines remains strong on the Internet. One of the most popular topics under discussion seems to be emulation, i.e. running native Atari 8-bit software on non-Atari machines such as the IBM PC, and with the ever-increasing power of PCs, software emulators can finally do justice to the original Atari systems. The emulators I looked at were: "PC Xformer" (a PC version of an older ST 8-bit emulator), and "XL-It!" (written by a German computer science student, who sadly no longer appears to support the program). You can download free versions of them from the Internet as compressed ("zipped") packages of files (a.k.a. file archives). Both emulators require a minimum of a 386 processor, but a Pentium (the faster the better) is recommended. Both run under MS-DOS and require VGA graphics. XL-It! needs a Sound-Blaster compatible sound card for sound emulation.

As well as the emulator program itself you also need the Atari "ROM Images". Basically, everything which was "built-in" to the Atari's ROM - such as BASIC - has been somehow "ripped out" of the machine and turned into files. Only PC Xformer includes these files in

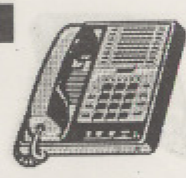


The famous Atari walking robot demo running under XL-it! on an IBM PC

its archive - XL-It! is supplied "bare" - you have to find and retrieve the ROMs yourself (or get them from the PC Xformer archive).

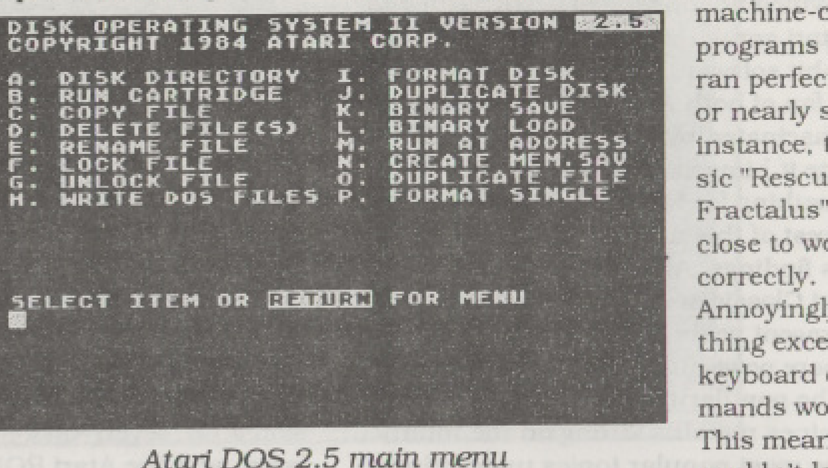
PC Xformer comes in a 565K zip file, which includes an MS-DOS version of Xformer version 3.60, seven "disk images" (more on these later), and the Atari ROM files. XL-It! comes in a 335K zip file and only includes an MS-DOS version of the program (an early version, but fully functional).

Emulators can work in two different ways. By using a special cable you can connect your Atari disk drive to the PC and run programs on the PC directly from the original Atari disks. Or, if like me, you don't have the cable, you can run programs instead from specially created "disk images", which you load into your PC's disk drive. These are relatively small files which, in turn, contain all the files originally on a particular 8-bit diskette. For example, PC Xformer includes a file called ANALOG51.XFD. This file is an "image" of an old issue disk from Analog magazine Issue 51. By telling the emulator to load this image from the PC disk drive into a "virtual disk drive" and then switching on your "virtual Atari", the programs within the disk image can be run. Disk images tend to be in one of two formats - either .XFD files or .ATR files. Both of the emulators I looked at support both formats.



XL-It!

XL-It! was the first emulator I tried. Upon startup, you are presented with a basic user interface. This features menus to load disk images and little else at present. Having chosen a disk image, you click the "Start!" option in the "System" menu. At this point, there is a pause, and then... the familiar blue Atari screen appears! Everything works as it should - typing "DOS" launches DOS 2.5; doing something silly launches you into the "Self-Test" screen; and bad disks fill the screen with the immortal words "BOOT ERROR".



Atari DOS 2.5 main menu - running on an IBM PC under XL-It!

XL-It!'s major selling point is its amazing sound support. It offers excellent emulation of the Atari's POKEY sound chip through the use of digitised samples from the original system. Anyone with a Sound Blaster sound card in their PC can hear the sounds in all their glory. To test this out, I experimented with the SOUND statements in BASIC. Sure enough, it made the expected noises.

XL-It! also handles all the GTIA modes, Player-Missile graphics, Display-List Interrupts - in other words, almost anything the original 8-bit could do. The author reckons that 90-95% of all Atari Classic software should run on the system - and most of the software I tried worked perfectly. All the BASIC programs on Xformer's Analog disk-images worked fine, as did the classic Atari Demo (remember this? The walking robot, the flying spaceship... impressive stuff!).

Unfortunately, the author of XL-It! is no longer supporting the program, and it has now become difficult to find. This is a great shame, because from what I've seen XL-It! is a good emulator - it runs at high speed and has an excellent success rate. For example, every BASIC program I tried worked perfectly. Most machine-code programs I tried ran perfectly too - or nearly so. For instance, the classic "Rescue On Fractalus" came close to working correctly. Annoyingly, everything except the keyboard commands worked. This meant you couldn't land your ship and so on and thus defeated the object of the game! Most unfortunate. "Plastron" however, worked wonderfully.

PC Xformer

PC Xformer is the latest incarnation of a well-known and respected emulator. It has been around for several years on various platforms. Version 3.60 is available as freeware and is the last MS-DOS version of the emulator. More recent versions are shareware (requiring a registration fee) and only work under Windows 95. Xformer's list of features is almost as impressive as XL-It!'s. It handles all the usual features - DLI's, Player-Missiles and apparently has limited sound support. However, I had great problems getting any sounds to play. Experimenting with SOUND statements didn't work, for example.

Xformer comes with seven disk images. They



```
STOPPED  AT LINE 384
LIST

0 REM analog-apr86-pg25-xs
1 CLR :GOTO 375
2 GRAPHICS C0:ST$=M$(883,888):Z=ASC(ST
$(C6,C6)):OPEN #2,C8,C0,"S:":GOSUB 6:P
OKE 703,C4
3 POSITION C0,19:? #C2;"";
4 Q=USR(ADR(DLI$),ADR(DLI$)+32):POKE 5
4286,192:POKE C16,112:POKE 53774,112:G
OTO 109
5 POKE C710,C0:POKE C709,C14:RETURN
6 POKE C709,C14:POKE C710,148:RETURN
7 FOR I=C0 TO C12 STEP C4:X1=USR(ADR(F
$),I):NEXT I
8 X1=USR(ADR(F$),C14):X1=USR(ADR(F$),C
16):RETURN
9 SOUND C0,25,C10,C15:FOR I=C1 TO C4:N
EXT I:SOUND 0,0,0,0:RETURN
10 ? "I don't understand.  Try again."
:GOTO 86
11 ? "That is impossible.":RETURN
12 ?
```

Atari BASIC running via XL-It! - listing a program

include two issue disks from Analog magazine, two disks of demos, a DOS 2.5 disk, a MyDOS disk, and a disk of three strategic Star Trek games. All the disks provided worked perfectly, albeit without sound. Apparently this is being corrected in a later version. However, "Rescue On Fractalus" didn't work properly - there was severe colour corruption and the 3D graphics didn't display properly. "Plastron" worked fine, but again without music.

Xformer is well-respected, but isn't as feature-packed as XL-It!. The latter would be the ideal choice, but unfortunately the Internet site from where it could originally be obtained now seems to have closed down. If you can find a copy, go for it. If not, point your WWW browser at "http://www.emulators.com" to download Xformer.

EMULATOR LINKS

Try "http://www.ultranet.com/~asmolar/atari8" for reviews of the major emulators. It also contains links to their WWW homepages, and to downloadable files.

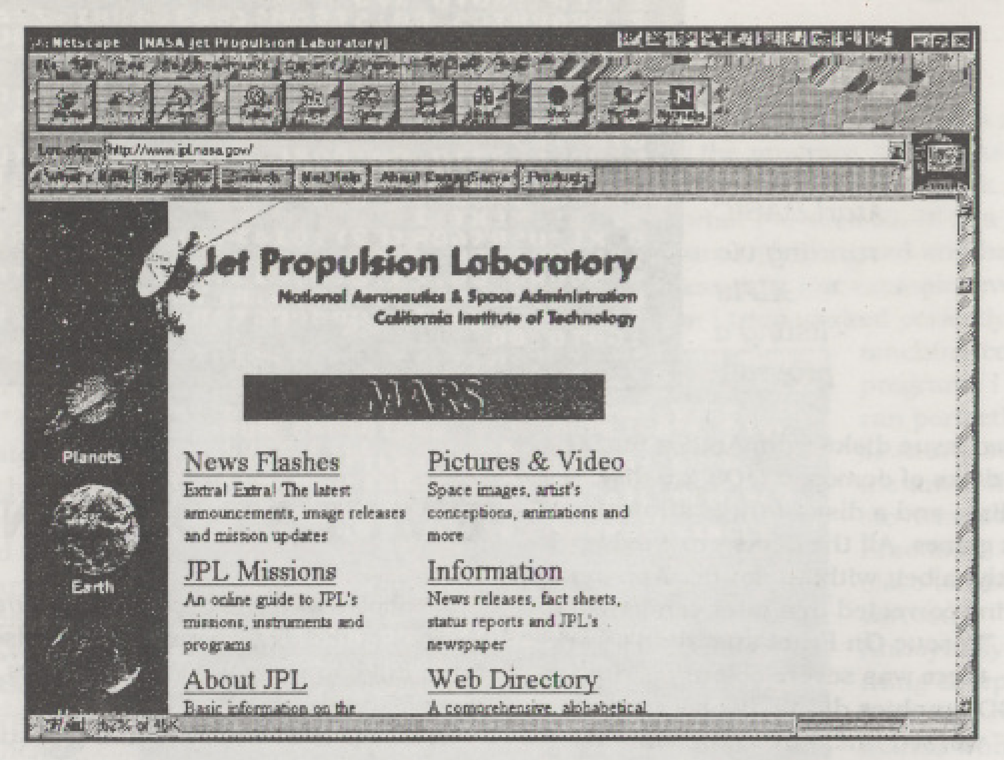
For a FAQ (Frequently Asked Questions) file on Atari emulation, go to "http://zippy.sonoma.edu/~kendrick/nbs/new_and_emu.html".

Finally, an enormous archive of Atari software in disk image format is available for all at FTP site "ftp.hackerz.com". I'm not sure of the copyright status of the games present there, but they are available for any Internet user to access.

Site References

Yahoo Search Engine	http://www.yahoo.com
NASA Jet Propulsion Laboratory	http://www.jpl/nasa.gov/
Mars Pathfinder Mirror Site	http://mars.eso.org
Emulators Online	http://www.emulators.com
Emulator Reviews	http://www.ultranet.com/~asmolar/atari8
Emulators FAQ	http://zippy.sonoma.edu/~kendrick/nbs/new_and_emu.html
Disk Image Archive	ftp.hackerz.com





NASA's WWW site for the Mars Pathfinder mission

NAU INTERNET CONTACT LIST

The following is a list of NAU readers who'd welcome e-mail from other Atari users. If you'd like to be added to this list please drop an e-mail note to John S Davison at the address below.

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contact ... contact ... contact ...

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LOADS OF STUFF: I have a dozen boxes of 8-bit stuff to clear and invite offers. The first offer that I accept will get Box X for free. BOX 1 - 1029 printer plus dust cover and manual. BOX 2 - Colourspace cassette plus 5 cassette and 8 cartridge games. BOX 3 - disk software, 25 titles inc. Hawkquest and Mercenary Compendium. BOX 4 - Basic, Action, Pilot, SpartaDos X and Assembler Editor. BOX 5 Books, 20 all about Atari. BOX 6 - Issue disks, user group and magazine disks, over 40. BOX 7 - Over 100 magazines inc. Antic, Page 6, I/O and Monitor. BOX 8 - two 1050 disk drives and 1 CX12. BOX 9 - a non-working ??. BOX 10 - Unused Ramrod and Micropost X2. BOX 11 - Disk box for 100 disks. BOX 12 - Over 100 PD disks. BOX X - Blank disks, diskboxes, disk notchers, mouse, mouse program disk, Print Shop Collection plus Option Packs 1 & 2 and 8 other items. Please write to David Brown, 37 Lockhart Road, Cobham, Surrey KT11 2AX

HARDWARE & MORE: For sale, 130XE, 1050, 1029, 1020, 800XL, XC12 - all in good working condition. Lots of software - some very rare ROMs - lots of mags, manuals etc. will split. Offers? Contact Rob on 0161 439 7757

EMIGRATION SALE: 8-bit collection comprising 130XE; 65XE upgraded to 130; 64XL; 3 disk drives (two with US Doubler, one for spares); data recorder; hundreds of disks, cassettes, games; whole Atari User publications; Page 6 from issue 1 to date; many Atari orientated books; printer connector; all PSU and cables; disk boxes etc. There is a lot of material and it is well worth £200 or v.n.o. Emigration forces sale. Regret due to quantity - buyer collects. Contact John McIntosh, 25, Holtdale Place, Leeds, LS16 7RH

WANTED

DISK DRIVE: XF551 or 1050 in good working condition. J. Friggieri, S. Dimech Street, Balzan BZN08, Malta

WORLD CUP MANAGER: STV program wanted on disk (preferably) or tape with full instructions or manual. WITNESS and DEADLINE also wanted, all contents of game must be included. I am also trying to build up a unique home-made adventure collection, so if you could send me a copy of your adventures with aim and plot of adventure if possible on disk, or please contact me. Daniel Swindells, 75 Broad Street, Dagenham, Essex, RM10 9HP, England

PENPALS

PENPAL WANTED: 16 y/o Atari Classic owner and fan of Friends, Frasier, TFI Friday, comedies and X-Files etc. With a main interest in software seeks similar penfriend, male or female aged 15+ with similar interests. Contact Daniel Swindells, 75 Broad Street, Dagenham, Essex, RM10 9HP, England. (If possible could a photo be included.)

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CONTACT, PAGE 6 PUBLISHING, STAFFORD, ST16 1DR

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PROGRAM LISTINGS

Certain program listings which are too long to include in the magazine may be obtained free of charge as printed listings to type in. All programs are, however, included on the Issue Disk which is available with each issue. Remember this disk also includes BONUS PROGRAMS which do not appear in the magazine. If you would like the type-in listings please write or telephone indicating which listings you require. Please note that there are not necessarily extra listings for every magazine.

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